ICF-6700L

AEP Model
UK Model

FM/SW/MW/LW MULTI BAND RECEIVER

SPECIFICATIONS

Power Requirements: 110, 120, 220 or 240V ac adjustable, 50/60Hz
9V dc, six batteries size D
(IEC designation R20)
12V car battery with optional
Sony Car Battery Cord DCC-130

Power Consumption: 7W ac

Dimensions: Approx. 453(w)x184(h)x227(d)mm
$17^{7}/_{8}$ (w) x $7^{1}/_{4}$ (h) x 9(d) inches
including projecting parts and controls

Weight: Approx. 5.5kg, 12 lb 2 oz including batteries

Circuit system: FM/MW/LW: Superheterodyne
SW: Dual conversion superheterodyne

Frequency range:
FM: 87.5–108 MHz
SW_1: 1.6–10 MHz (187.5–30 m)
SW_2: 11.5–20 MHz (26.1–15 m)
SW_3: 20–29.5 MHz (15–10.2 m)
MW: 530–1,605 kHz (566–187 m)
LW: 150–400 kHz (2000–750 m)

Antennas:
FM: Telescopic antenna, External antenna terminals (low impedance)
SW: Telescopic antenna, External antenna terminals (50–75 Ω)
MW/LW: Built-in ferrite rod antenna
External antenna terminals
(low impedance)

Speaker: Approx. 10 cm (4 inches) dia.

Power output: 900 mW (at 10% harmonic distortion) at dc operation

Input: Timer input jack (minijack)

Outputs: Recording output jack (minijack)
output level 0.8 mV (–60 dB)
output impedance 1 kΩ
Earphone jack (minijack)
for 8Ω earphone
Multiplex output jack (minijack)
Headphones jack (stereo binaural type jack)
for 8Ω impedance stereo or monaural headphones

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SONY®

SERVICE MANUAL

1232

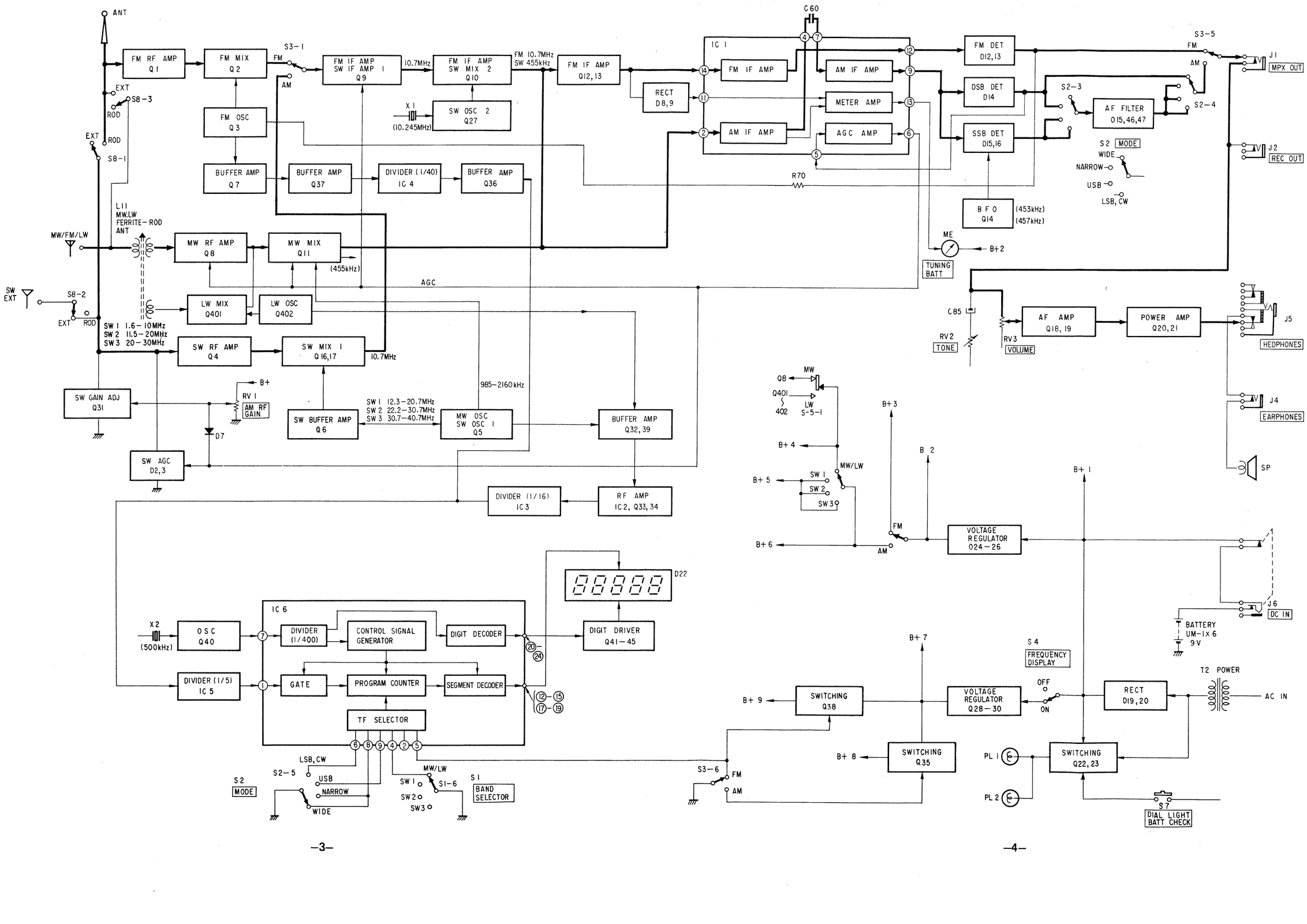
1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM



1-2. CIRCUIT DESCRIPTION

I. RECEPTION CIRCUIT

Fig. 1 is a block diagram of the equipment. Only the main parts are indicated to clearly illustrate the operation of the system. It consists of advanced circuits giving high efficiency. These include a double superheterodyne circuit with I-Fs at 10.7 MHz and 455kHz, a balanced type first frequency mixer, a preselector with high gain over a wide frequency range, a low frequency filter to enable easy listening to SSB, an FET RF amplifier that withstands noise and even an FET RF stage in the MW band.

Below is a brief explanation of how these circuits process the received signals.

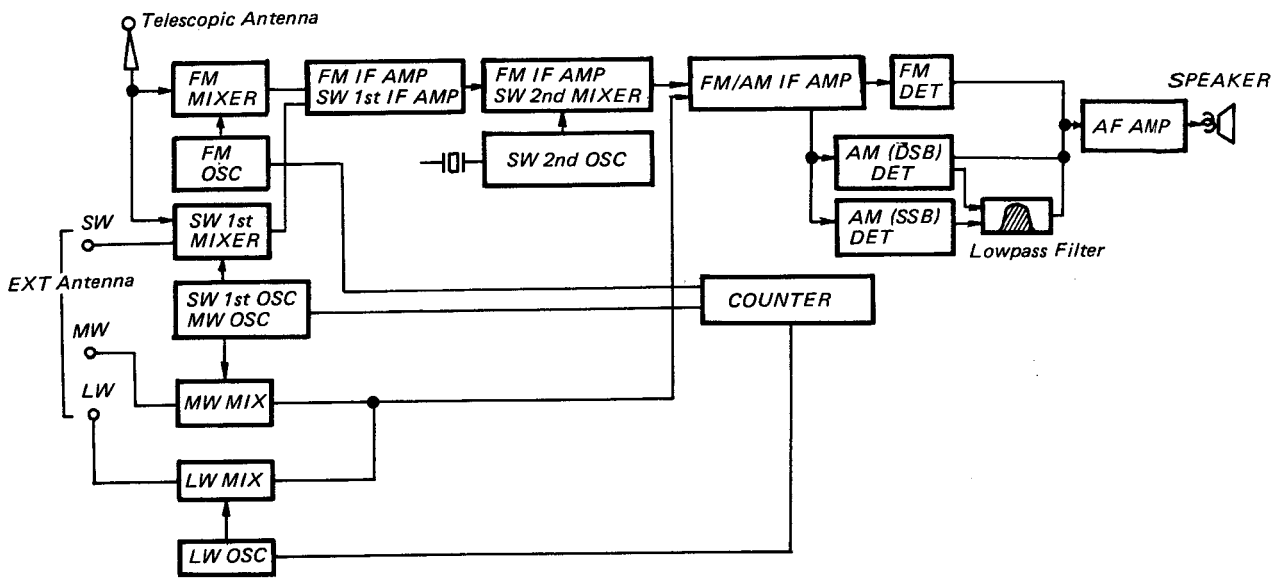


Fig. 1

1. SW bandpass filter

A bandpass filter is installed in the SW external antenna terminal input circuit. This filter prevents large-amplitude signals of unwanted frequencies from getting into the high-frequency amplifier. The filter is not installed at the rod antenna, however, because the impedance of the rod antenna is high enough to reject undesired large-amplitude signals. In addition, the filter would be less effective because of the high and frequency-dependent impedance of the rod antenna.

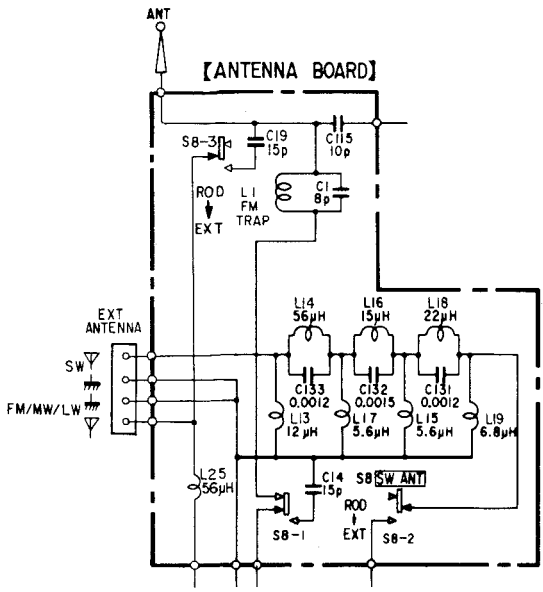


Fig. 2

2. Preselector

Preselectors are installed at both the input and output sides of RF amplifier Q4 and are synchronized. These are the same as the RF amplification circuits of regular type of receivers, but in order to maintain high efficiency over a wide range of frequencies and also to simplify the system, they are designed to be operated separately from the main dial. Moreover, L and C are set to be variable since a wide range of frequencies are to be covered.

3. High frequency gain adjustment See Fig. 3

RV1 controls the impedances of Q31, D2 and D3 which are also the input impedance of RF amplifier Q4. It also controls impedances D4, D6 of the antenna circuit in the MW band and D401, D402 of the antenna circuit in the LW band, and results in varying the RF gain in the MW/LW band as well. When RV1 is at the maximum gain position, AGC voltage is applied to D2, D3, D4 and D6.

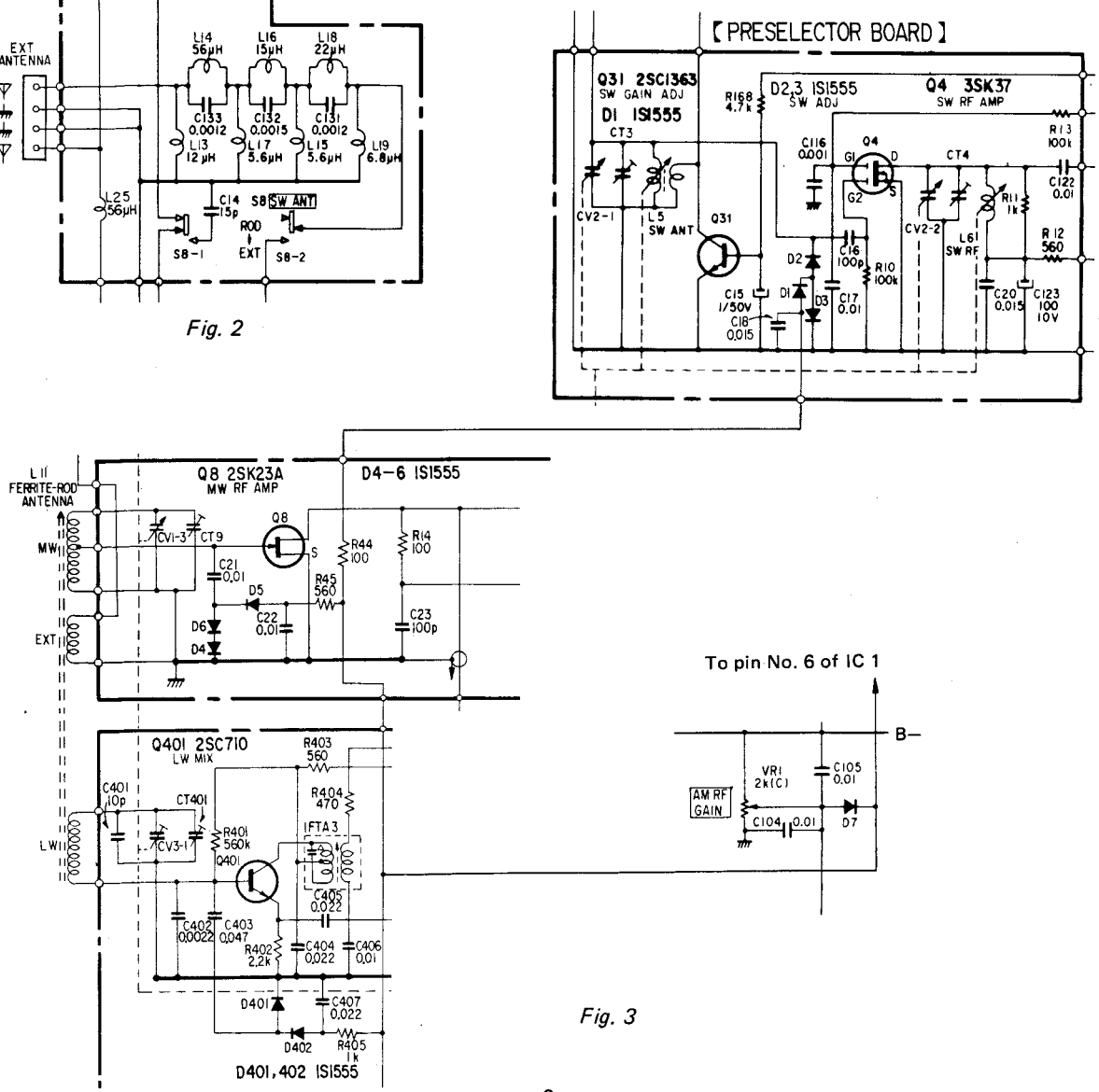


Fig. 3

4. SW primary frequency mixer (Q16, 17)

This balanced type frequency mixer consists of two 2SK23As. A characteristic of this type of frequency mixer is that signals entering from the balanced side are not, as a rule, transmitted to the output side. The received signal amplified by Q4 enters the balanced side. Applying the received signal to the balanced side makes it low in noise even when spurious waves of different frequencies are brought into the frequency mixer. This becomes quite effective for spurious waves which are the same as the first I-F 10.7 MHz. A variable resistor is installed in the source circuit so that the gains of Q16 and Q17 are simultaneously adjusted for the best balance. Local oscillation output is transmitted to the source. This frequency mixer transfers the received frequency to 10.7 MHz to enter the FM I-F amplifier. Setting the first I-F at 10.7 MHz means that the circuit can be used for FM and, since the frequency is high, an outstanding image rejection rate is obtained.

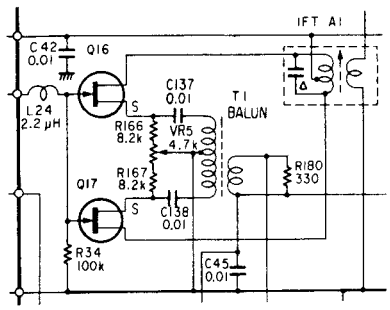


Fig. 4

5. SW second frequency mixer (Q10)

This frequency mixer also operates as an FM I-F amplifier. For SW, by changing the bias it can be used as a second frequency mixer. This also transfers 10.7 MHz to the second I-F of 455 kHz. A local oscillator signal of high stability from a crystal oscillator is put into the emitter. The frequency of the local oscillator is fixed at 10.245 MHz. The output of the second frequency mixer enters IC1 by way of CFT and CFU to be amplified.

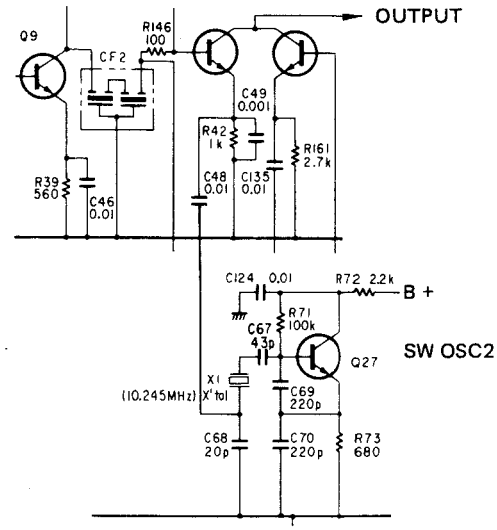


Fig. 5

6. SW second 1-F amplifier (IC1)

This IC contains not only an AM I-F amplifier but also an FM I-F amplifier, an AGC circuit, a meter circuit, etc.

7. Wave detector (D14–D16)

D14 and D15, D16 are wave detector diodes for DSB and SSB respectively. The detector for SSB is an ordinary balanced product detector. LSB and USB are selected by using S2-2 and C134 to shift the frequency by 2 kHz. This is performed by adjusting the core of L12 so that reproduced frequencies of LSB and USB become identical after receiving non-modulated waves accurately at the DSB position. The wave detector for DSB is a conventional type.

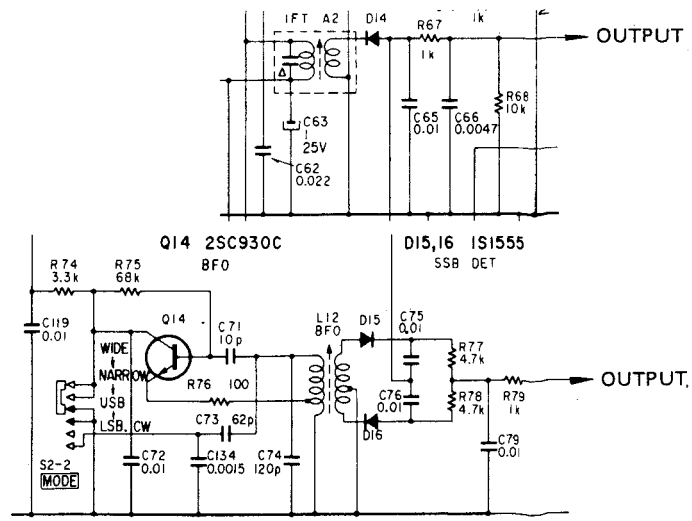


Fig. 6

8. Low-frequency filter (Q15, Q46, Q47)

It is more important for SSB receivers to reproduce sound easy to understand, rather than high fidelity sound, for this reason after the signal is detected it is passed through the bandpass filter to cut off unwanted frequencies and noise. The dedector output in SSB operation is usually lower than that of DSB, and thus the filter produces some gain. Even for DSB, this filter cuts off the high and low range of frequencies so that the sound is easy to understand. This filter has a peak at approximately 1 kHz and is approximately −20 dB at 150 Hz and 2 kHz. After this filter, the signal is amplified by the AF amplifier and is sent to the speakers.

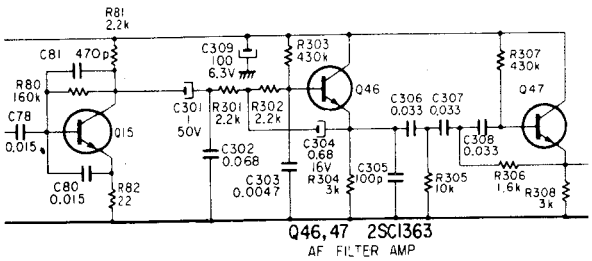


Fig. 7

II. DISPLAY CIRCUIT OF RECEIVED FREQUENCY

The block diagram of the display circuit is shown in Fig. 8.

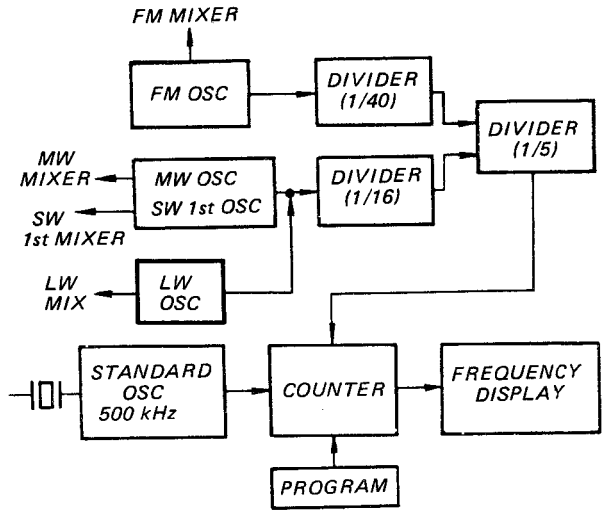


Fig. 8

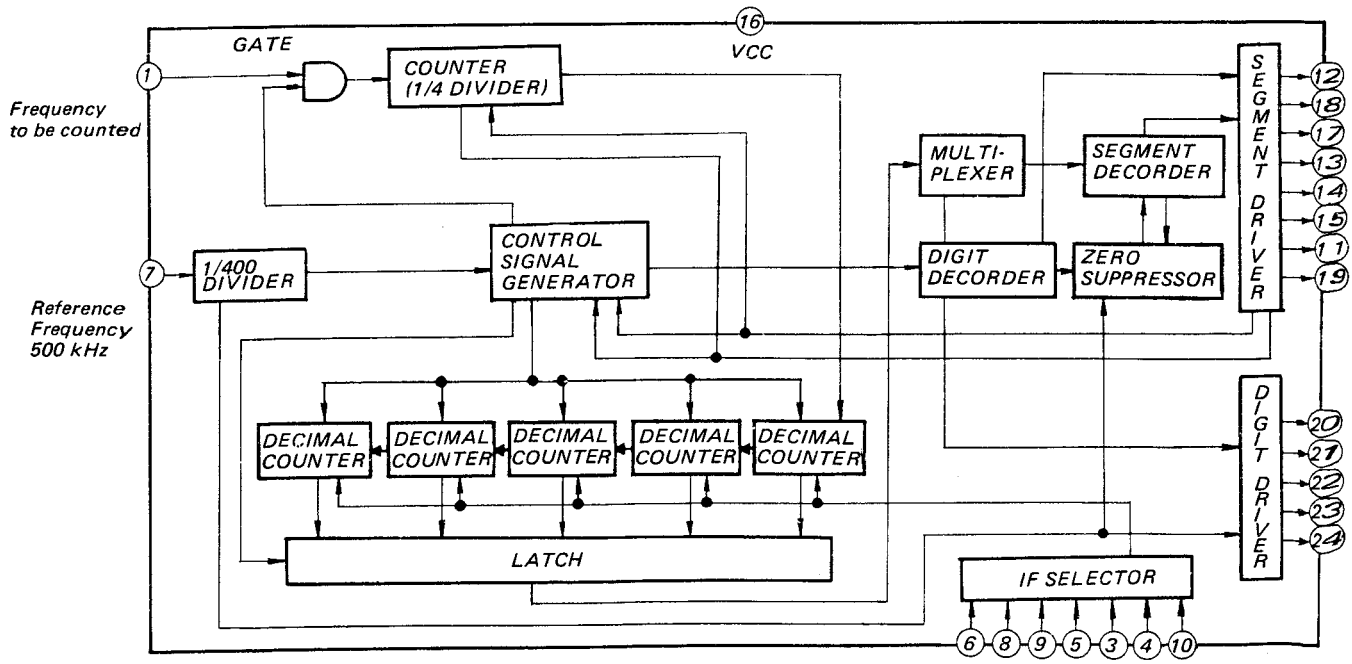


Fig. 9 BLOCK DIAGRAM OF IC6

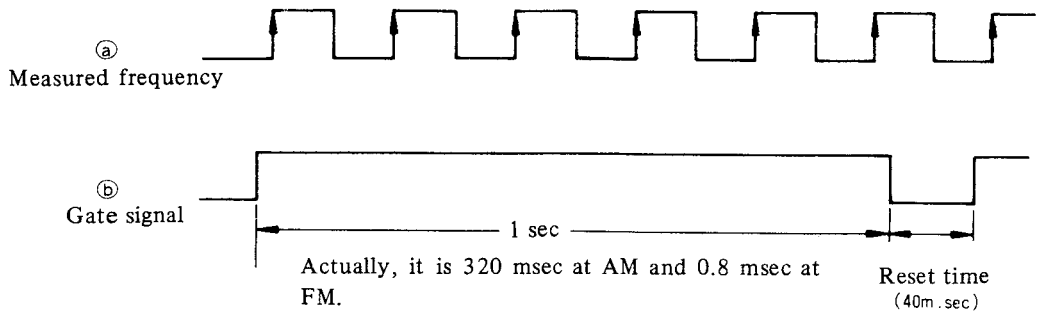


Fig. 10

Basic Operation of IC6 Counter

When a signal whose frequency is to be measured is applied to terminal 1, this signal enters the gate circuit. A reference frequency of 500 kHz is generated at terminal 7, and this signal is applied to the control-signal generator through the divider.

This signal is divided further in the control-signal generator so that a pulse lasts for a second as shown in Fig. 10. Actually, a display down to 1 kHz in MW/LW and 100 kHz in FM is sufficient. Thus, pulses in MW/LW and in FM are set to be 320 msec and 0.8 msec respectively. This signal from the control-signal generator is applied to the gate circuit (this signal is referred to as the gate signal). The gate circuit acts as an AND circuit, and an output signal appears when both ⓐ and ⓑ are at the same level. This output signal is divided and counted by the decimal counter.

As shown in Fig. 10, 6 pulses counted for a duration of 1 second make up the frequency 6 Hz.

Actually, high frequencies on the order of 10 MHz are received. Since the gate signal lasts for a second, the decimal counter must count pulses on the order of 10^5. Therefore, an extremely high speed counter is essential. The gate signal and the frequency to be measured are divided at the same proportion and counted. This method is called "Prescaling".

Decimal Counter

The signal generated above is applied to the decimal counter and its frequency is counted. The decimal counter returns to 0 after counting from 0 to 9, and 1 is displayed at the next counter.

Explanation of the operation of the decimal counter will be given using an example of a decimal counter in the Master-Slave system (negative-going trigger).

In this method as shown in Fig. 11, the counter reads in the signal while the input signal is at a higher level, as indicated by the heavy line, and generates signals according to the truth table in Fig. 12 when the input signal changes from the higher to the lower level as indicated by the arrow.

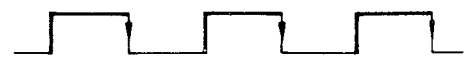


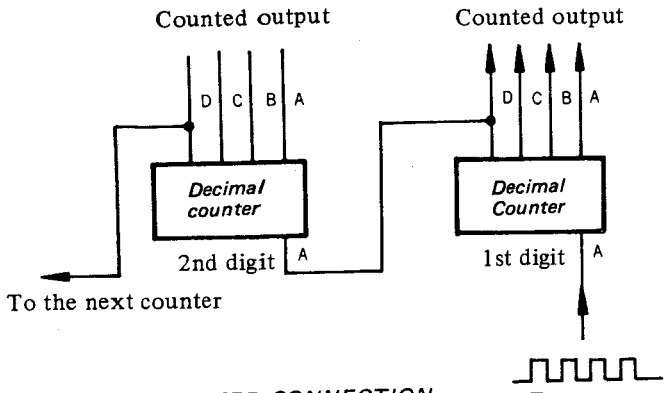
Fig. 11

Truth Table

Count	D	C	B	A
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1

Return from 9 to 0.

Fig. 12



COUNTER CONNECTION
Fig. 13

The frequency to be measured is applied to input A. Output D is connected input A of the next counter, and the next counter displays 1 when the count changes from 9 to 10.

Output D becomes 1 at 8 in the table, but the next counter does not display 1. The reason for this is that the signal to input A of the next counter is at a high level for both 8 and 9 and only goes low when the signal changes to a low level after 9.

The frequency is measured by using this technique.

The signals (outputs from A, B, C, D mentioned above) from the decimal counters are simultaneously sent to the latch circuit.

When the gate signal goes off, the decimal counter is reset to 0 for the next counter.

Latch Circuit

The result of the decimal count is put in the memory of the latch circuit when the gate signal is terminated. The purpose of the latch circuit is to keep certain information for a certain period of time.

In general, the latch circuit is made up of D type flip-flops.

Without the latch circuit, the display of the counter changes constantly as the counter counts pulses while the gate is open. The display becomes fixed and readable only when the gate is closed. The display returns to 0 when a reset signal is received and starts counting as the gate opens. This operation is repeated.

Therefore, with the latch circuit the display is fixed when the counting is over and continues to be so even when the reset signal is received. The display changes to show the results of the next count only when the next count is finished.

Multiplexer

The signal from the latch circuit is then sent to the multiplexer. This IC controls the LED display unit by a method called "dynamic drive", the generation of pulses to illuminate the digits of the LED in order from the 1st to the 5th digit.

Each digit of the LED is lit in sequence at a fast rate, but appears to the human eye to be lit continuously due to the "persistence of vision" effect.

This operation is performed through the multiplexer.

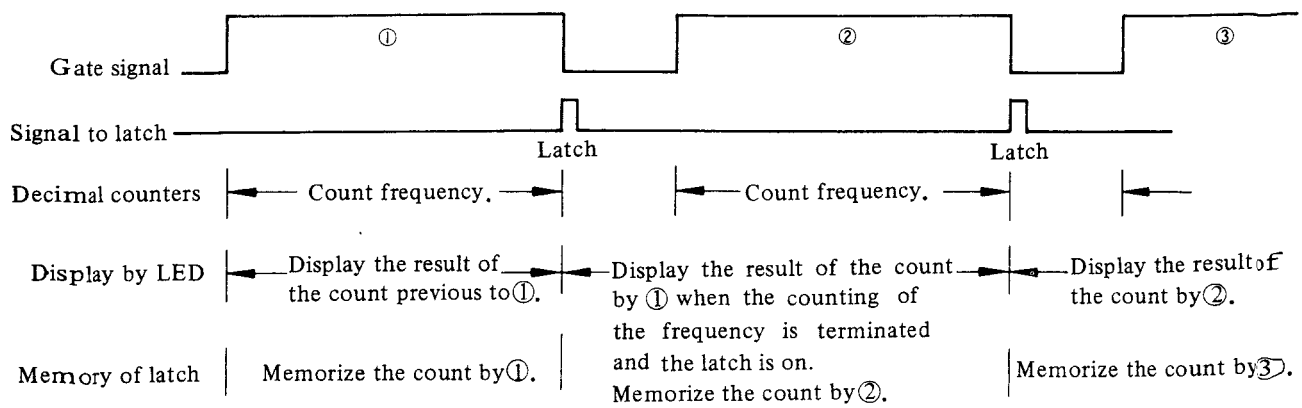
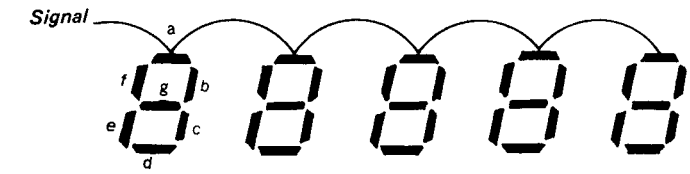
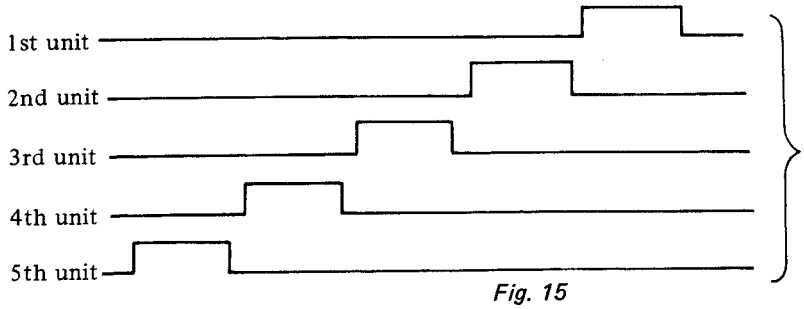


Fig. 14



The same segment in each unit is connected in parallel.



Apply a pulse so that each unit lights up in sequence.

Fig. 15

Segment Decoder

The purpose of the segment decoder is to change the output signals of the decimal counter to signals that illuminate the corresponding segment (a–g) of the LED.

The segment decoder operates as shown below. When the figure "2" is desplayed, for example, the signals shown in Fig. 7 are sent as output signals from the segment decoder.

Display of figure "2"

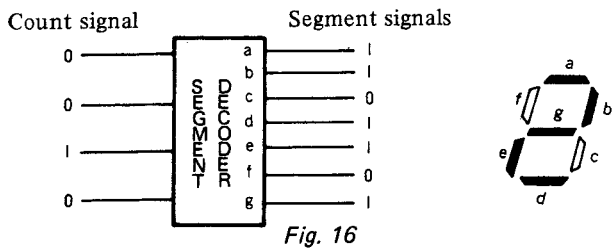


Fig. 16

Conversion Table

Figure	Count signal	Segment signal						
		a	b	c	d	e	f	g
0	0 0 0 0	1	1	1	1	1	1	0
1	0 0 0 1	0	1	1	0	0	0	0
2	0 0 1 0	1	1	0	1	1	0	1
3	0 0 1 1	1	1	1	1	0	0	1
4	0 1 0 0	0	1	1	0	0	1	1
5	0 1 0 1	1	0	1	1	0	1	1
6	0 1 1 0	1	0	1	1	1	1	1
7	0 1 1 1	1	1	1	0	0	1	0
8	1 0 0 0	1	1	1	1	1	1	1
9	1 0 0 1	1	1	1	1	0	1	1

Segment Driver

This amplifies signals generated by the segment decoder to the level required to operate the LED segments.

Digit Decoder

This generates signals for the multiplexer and the digit driver simultaneously.

Digit Driver

As previously mentioned in the explanation of the multiplexer, this IC provides the "dynamic drive" for the LED display.

This illuminates the 1st to the 5th digits in order. Q41–45 control the on-off operations of each digit of the LED. On-off signals are sent to Q41–45 by the digit driver.

Zero Suppress

Zero suppress is the circuit which terminates the display of zeroes preceding the significant figure.

Example: 00100 kHz
└─These 00 figures are not displayed.

Dynamic chart of each signal

An output dynamic chart for 12345 is given below as an example.

When both digit and segment outputs are at High level, the output is on.

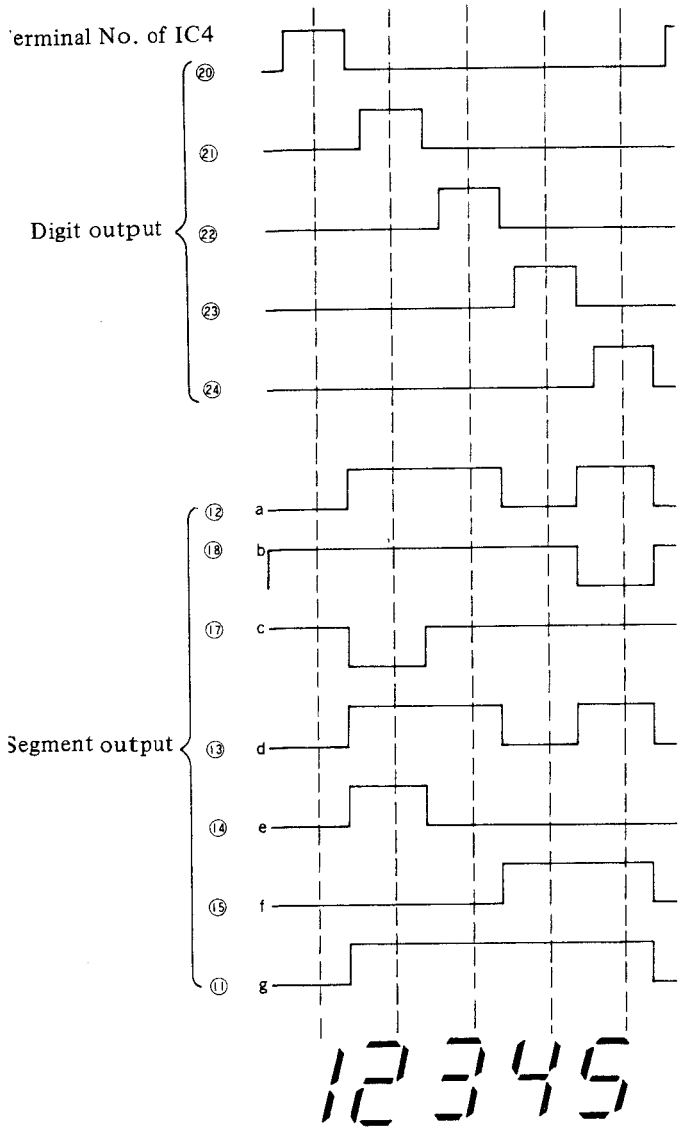


Fig. 17

I-F Selector

Since the frequency of the first local oscillator is 20.7 MHz, the counter would indicate 20.7 MHz if counted as it is, even if one wishes to display 10 MHz when receiving SW.

In order to get a display of 10 MHz a certain frequency must first be subtracted from the local-oscillator frequency. The I-F selector performs this subtraction. The counter has a display of five digits. If 0000 is set to be displayed when 10.700 is applied, 0000 1 kHz is displayed when 10.701 MHz is measured.

In order to get this performance, 10700 should be subtracted from the decimal counter before the next count.

These figures are calculated as follows.

100000 − 10700 = 89200

6 units

The figures 89200 should be set in the counter before counting a given frequency.

When 10.700 is counted, the display of the counters becomes 0, since 10700 + 89200 = 100000.

1 in the sixth digit is not displayed, since only 5 figures are displayed.

The I-F selector selects the figures to set in the counter before counting. The following figures are set by the I-F selector in this system.

FM	89200	
MW/LW	99545	
SW	89200	(WIDE, NARROW)
	89198	(USB)
	89202	(LSB)

For SSB receivers, the received frequency is set at the carrier position. However, the oscillation frequency of transmitter is 2 kHz above or below the carrier frequency, and thus the I-F selector adds or subtracts 2 kHz before counting.

Timing chart of each signal

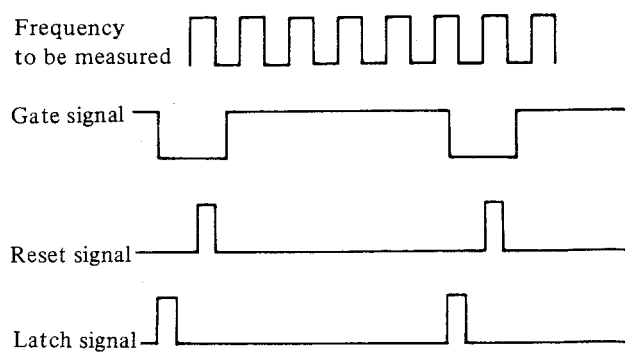


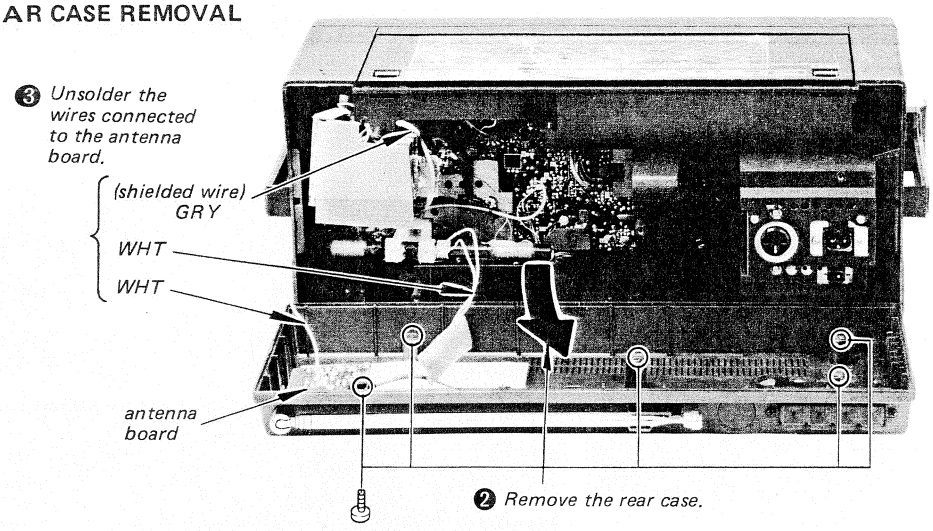
Fig. 18

SECTION 2
DISASSEMBLY

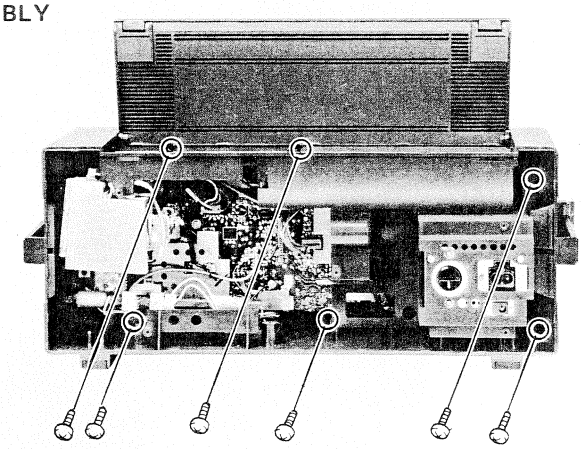
- Follow the disassembly procedure in the numerical order given.

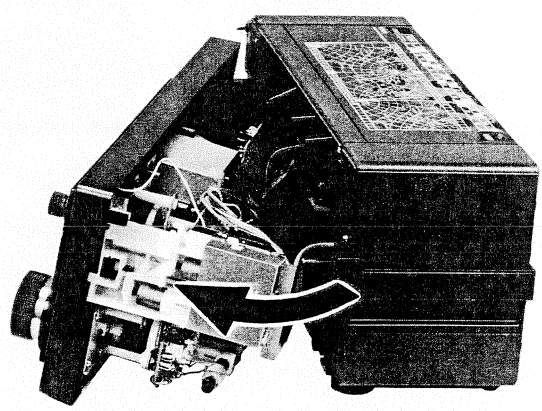
2-1. REMOVAL

REAR CASE REMOVAL

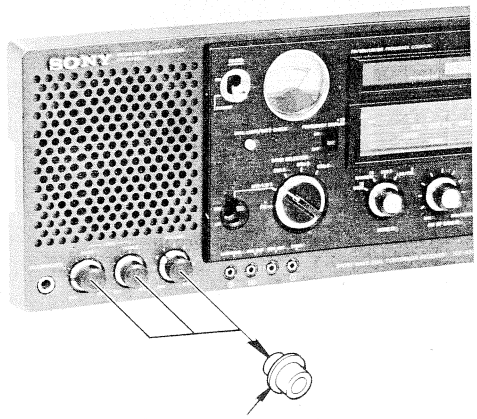

❸ Unsolder the wires connected to the antenna board.
(shielded wire) GRY
WHT
WHT
antenna board
❷ Remove the rear case.
❶ Remove five screws. BTP 3 x 14

CASE ASSEMBLY REMOVAL

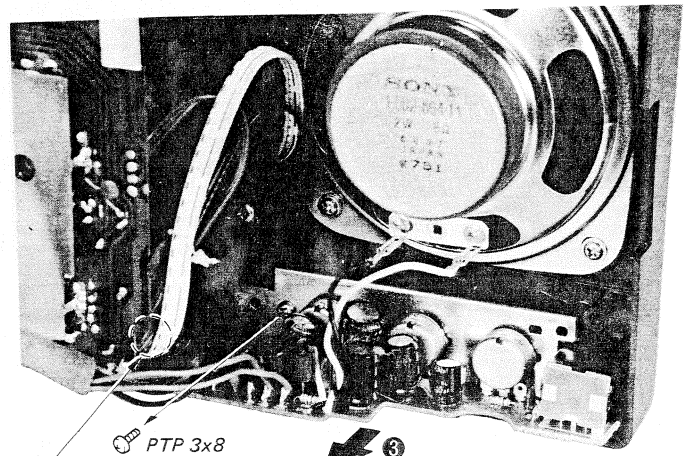




CONTROL BOARD REMOVAL



❶ Remove the knobs.



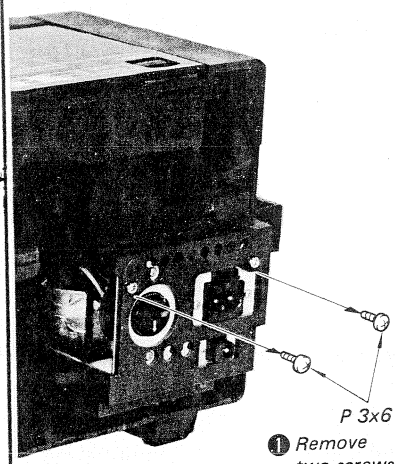
PTP 3x8

❷ Remove the screw.

❸ Remove the control board.

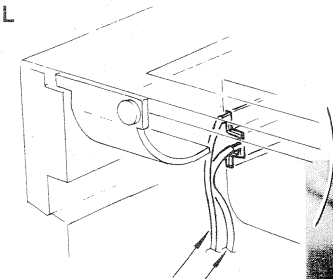
Be careful not to hitch the capacitor.

POWER SUPPLY BLOCK REMOVAL



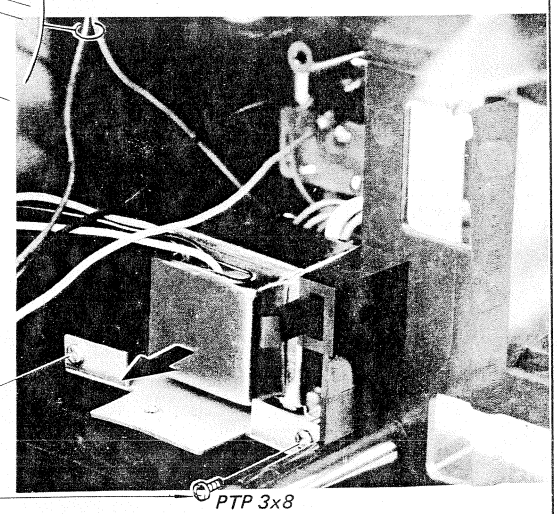
P 3x6

❶ Remove two screws.



BLK RED

❷ Unsolder the wires.



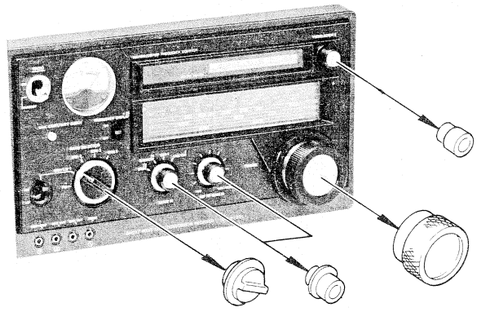
PTP 3x8

❸ Remove two screws.

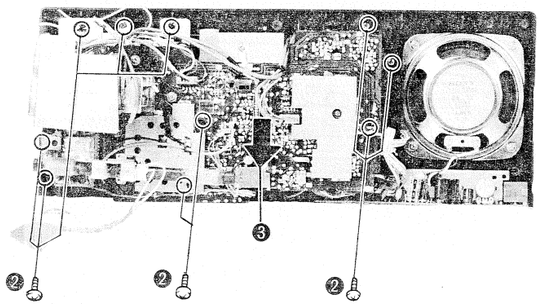
PTP 3x8

❹ Remove the power supply block in the direction shown by the arrow.

FRONT PANEL REMOVAL

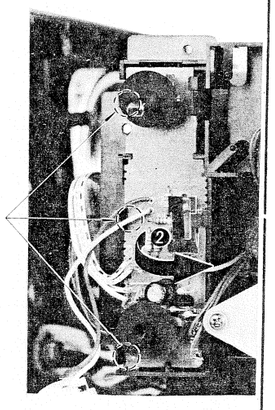


❶ Remove the knobs.



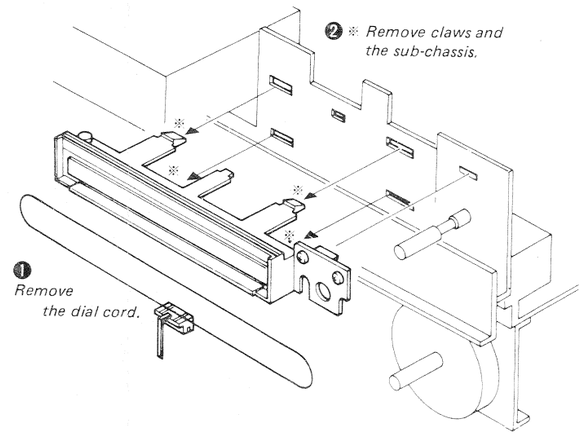
❷ Remove ten screws (BTB 3 x 10)
❸ Remove the chassis in the direction shown by the arrow.

LAMP BOARD REMOVAL



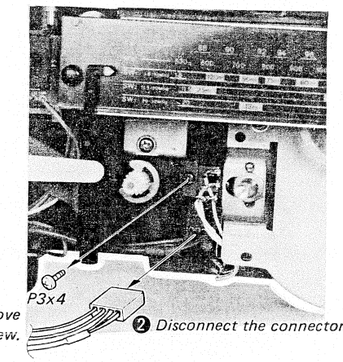
❶ Unlock claws.
❷

SUB-CHASSIS REMOVAL

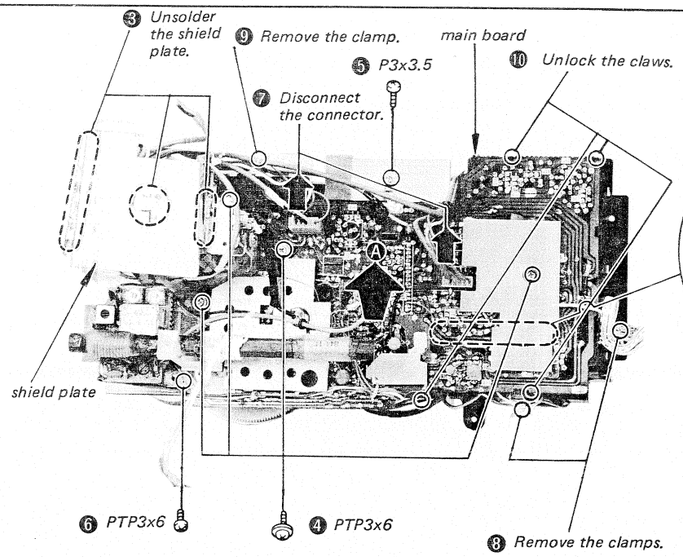


❶ Remove the dial cord.
❷ ※ Remove claws and the sub-chassis.

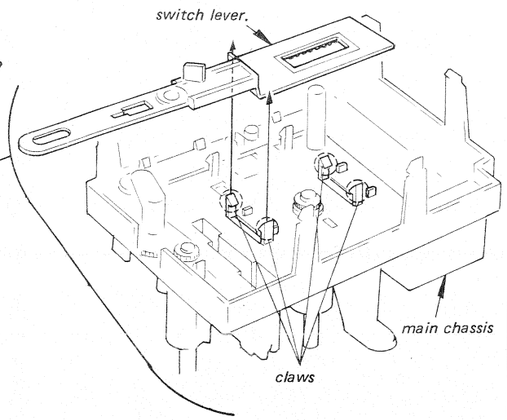
MAIN BOARD REMOVAL



❶ Remove the screw.
P3x4
❷ Disconnect the connector.

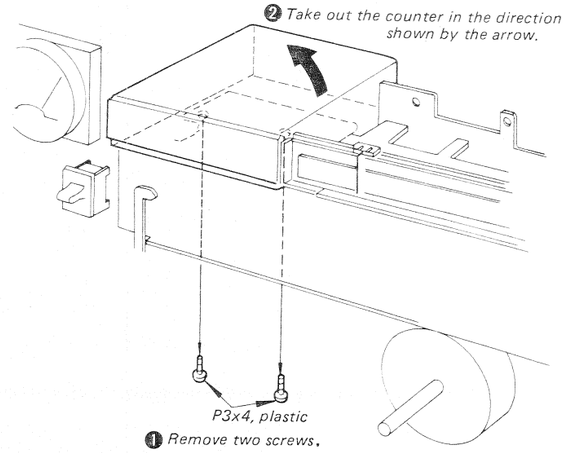


❸ Unsolder the shield plate.
❹ PTP3x6
❺ P3x3.5
❻ PTP3x6
❼ Disconnect the connector.
❽ Remove the clamps.
❾ Remove the clamp.
❿ Unlock the claws.
main board
shield plate



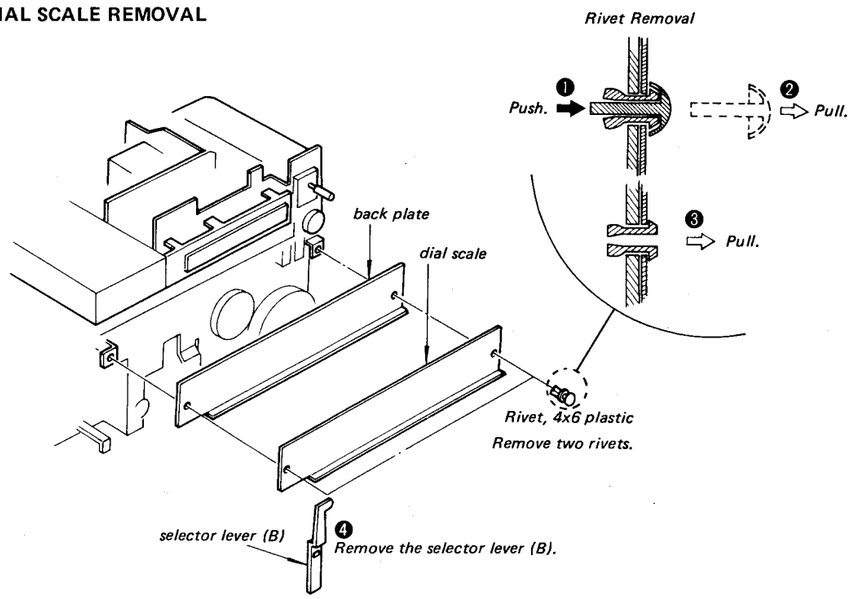
⓬ Unlock the claws to remove the switch lever while raising the main board.
switch lever.
main chassis
claws

COUNTER BLOCK REMOVAL

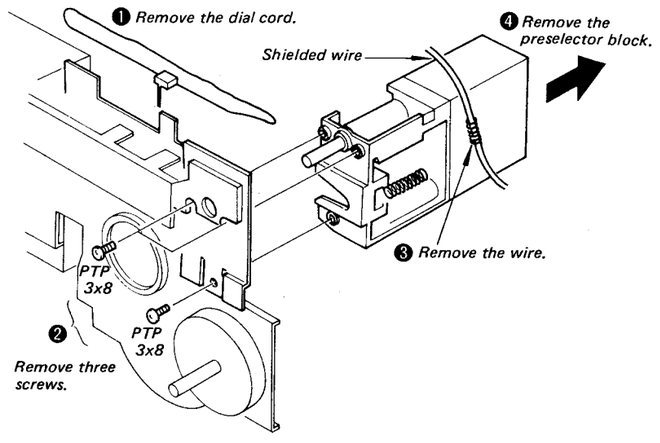


❷ Take out the counter in the direction shown by the arrow.
P3x4, plastic
❶ Remove two screws.

DIAL SCALE REMOVAL

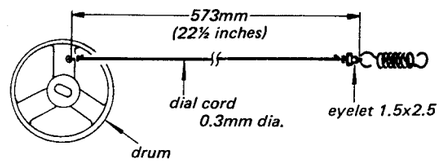


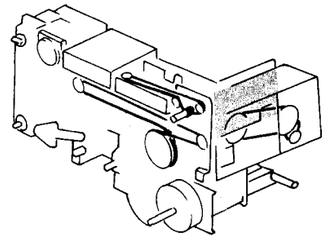
PRESELECTOR BLOCK REMOVAL



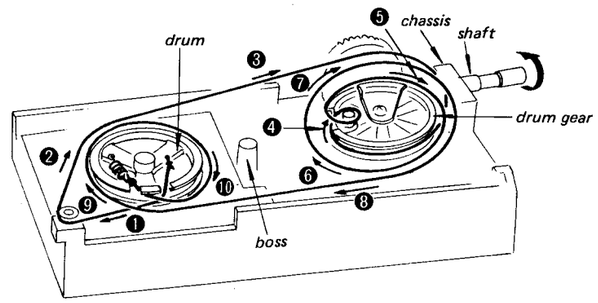
2-2. CORD STRINGING OF PRESELECTOR DRUM

1. Cord Preparation



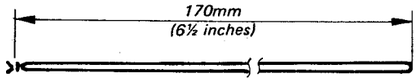


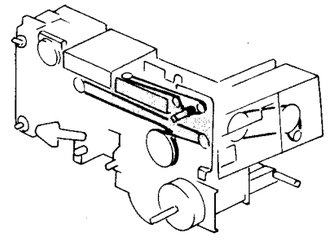
2. Dial Cord Stringing
Proceed in the numerical order given, after turning the shaft and the drum fully clockwise.



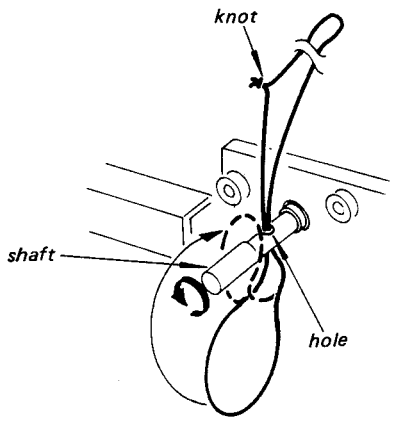
2-3. DIAL CORD STRINGING OF PRESELECTOR

1. Dial Cord Preparation

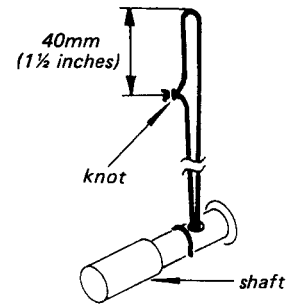




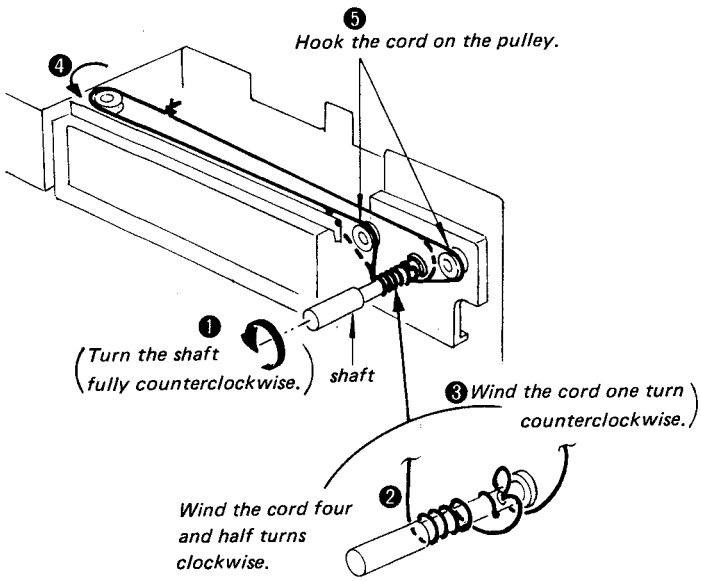
2. Turn the shaft fully counterclockwise and thread the dial cord in the hole of the shaft as shown below.



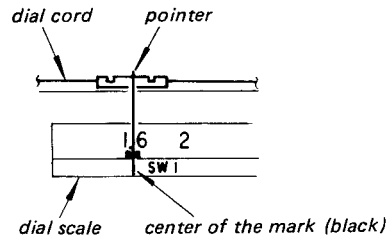
3. Set the knot of the dial cord as shown below.



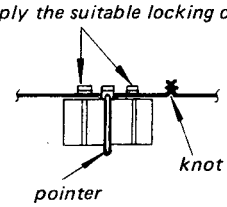
4. Proceed in the numerical order given.


❺ Hook the cord on the pulley.
❹
❶ Turn the shaft fully counterclockwise.
shaft
❸ Wind the cord one turn counterclockwise.
❷ Wind the cord four and half turns clockwise.

5. Install the pointer at the position as shown below, after turning the shaft fully clockwise.

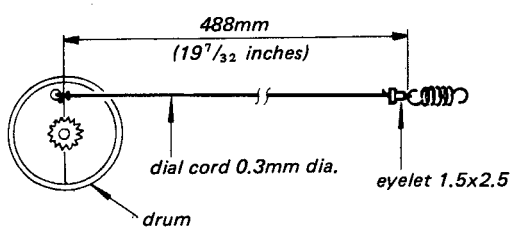


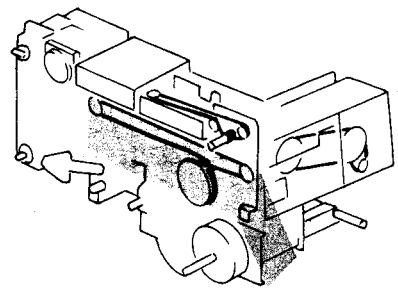
Apply the suitable locking compound.



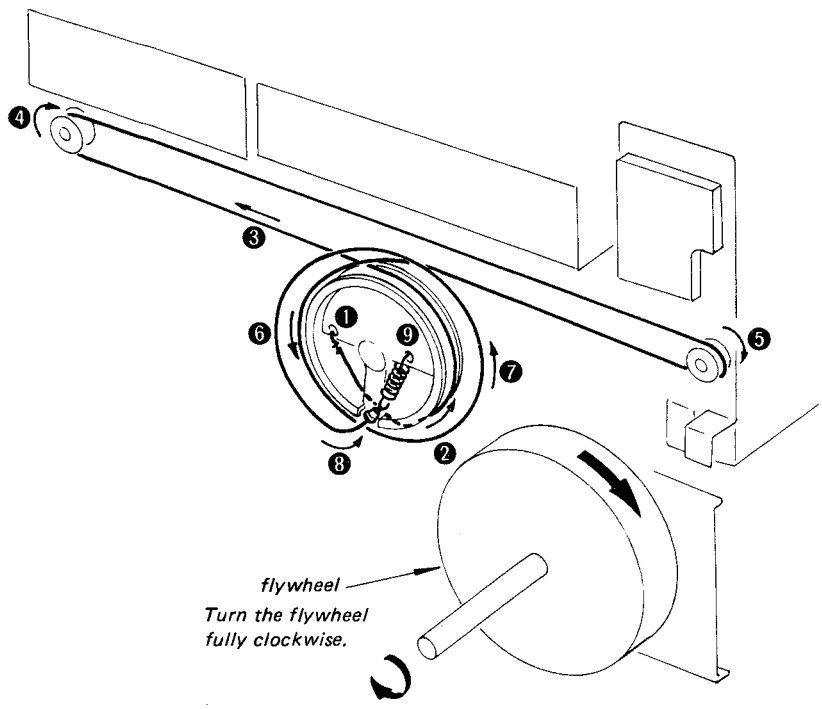
2-4. MAIN DIAL CORD STRINGING

1. Dial Cord Preparation

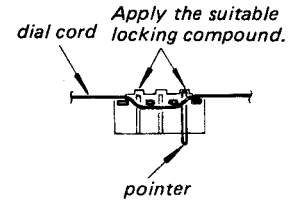


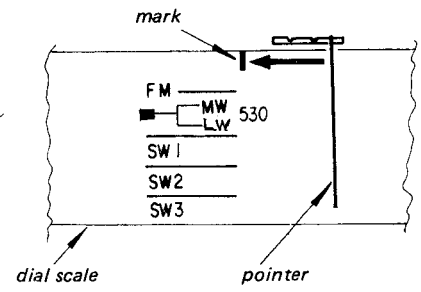


2. Proceed in the numerical order given.



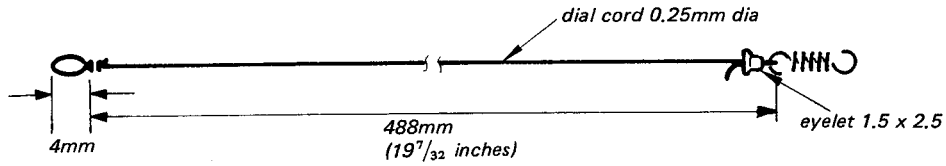
3. Pointer Installation



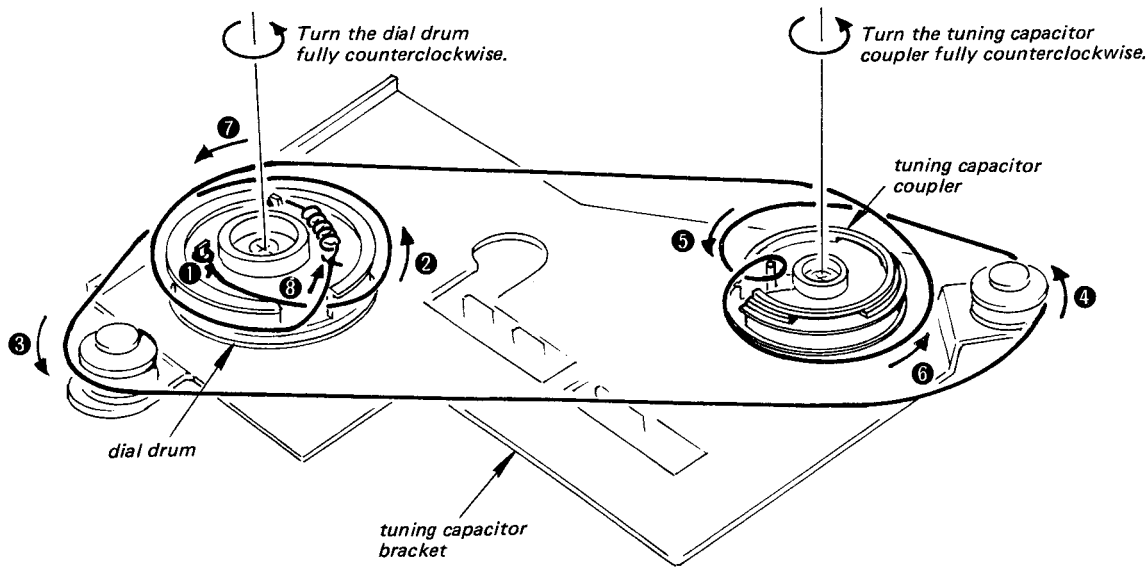


2-5. LW DIAL CORD STRINGING

1. Dial Cord Preparation



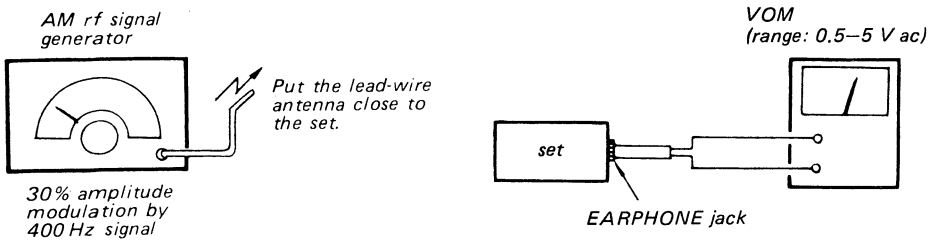
2. Proceed in the numerical order given.


Turn the dial drum fully counterclockwise.
Turn the tuning capacitor coupler fully counterclockwise.
tuning capacitor coupler
dial drum
tuning capacitor bracket

SECTION 3
ADJUSTMENTS

MW/LW SECTION

Setting:
BAND SELECTOR Switch; MW/LW


AM rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400 Hz signal
VOM (range: 0.5–5 V ac)
set
EARPHONE jack

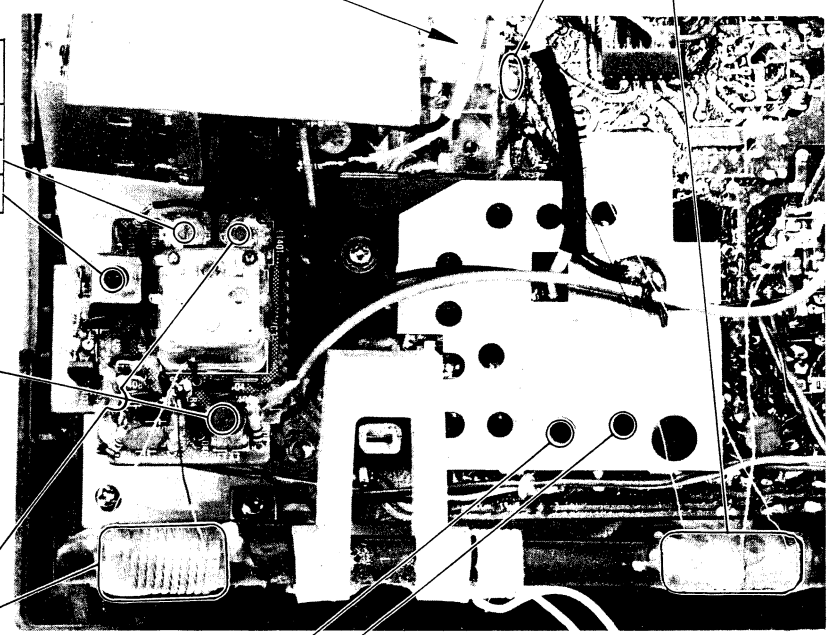
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM.	
CT 9	1,400 kHz
L11	620 kHz

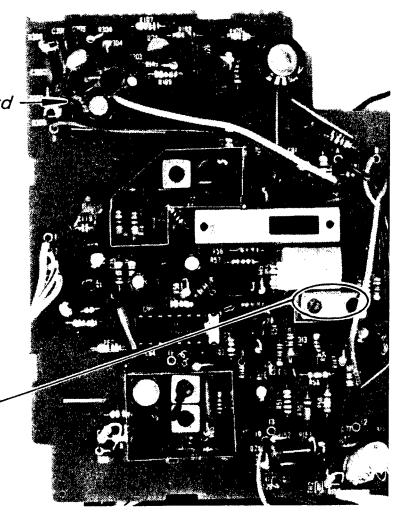
LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM.	
420 kHz	CT 402
145 kHz	L 401

LW IF ALIGNMENT	
Adjust for maximum reading on VOM.	
455 kHz	IFTA-3

LW TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM.	
360 kHz	CT 401
180 kHz	L 11



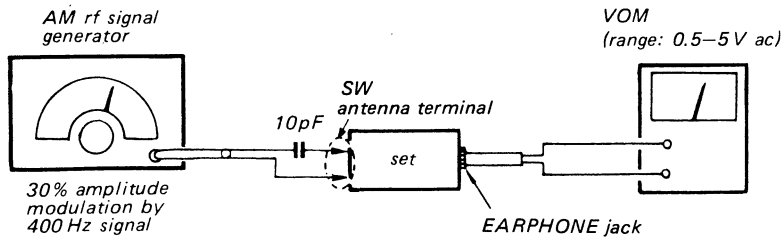
MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM	
520 kHz	L 7
1,680 kHz	CT 5

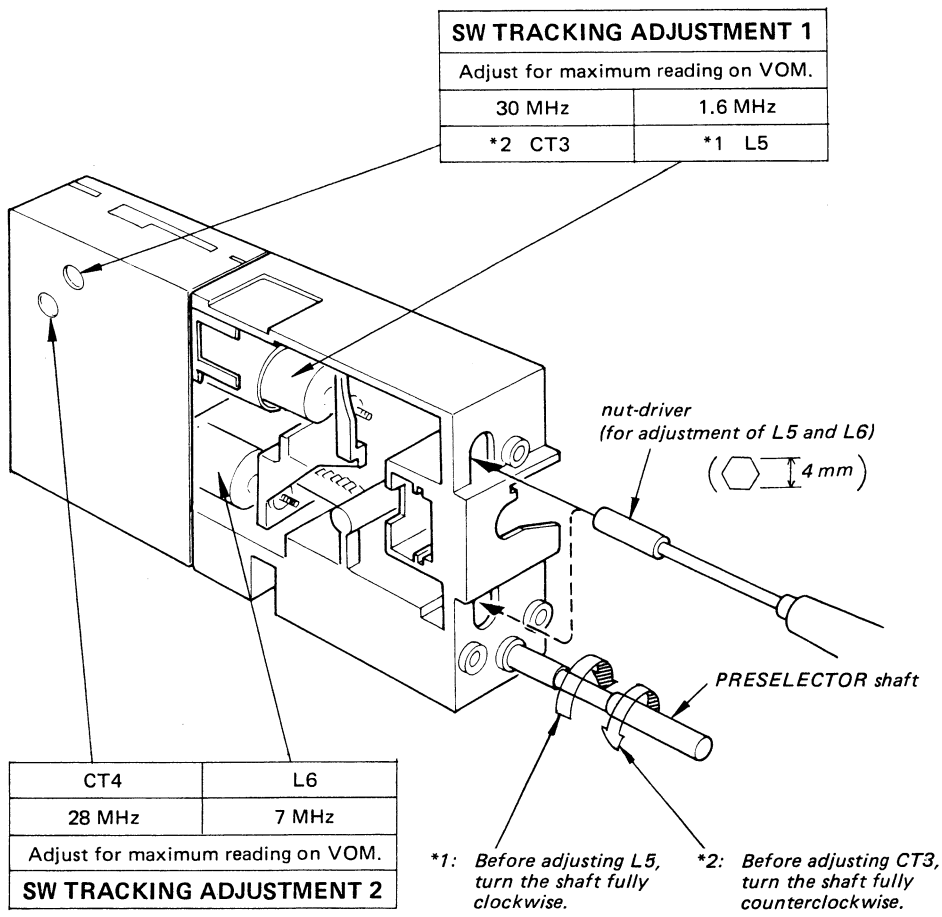


MW IF ALIGNMENT	
Adjust for maximum reading on VOM.	
455 kHz	CFT

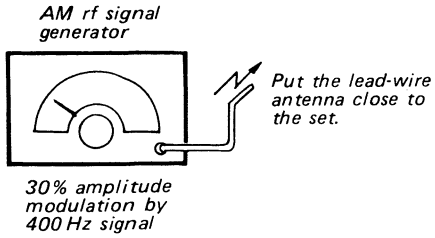
SW SECTION

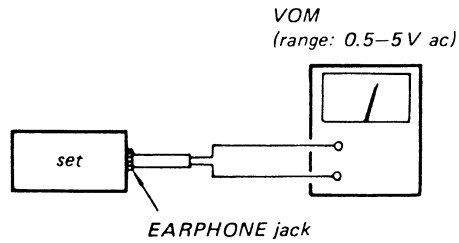
Setting:
BAND SELECTOR Switch: SW
SW ANTENNA Switch: EXT





Setting:
BAND SELECTOR Switch: SW
SW ANTENNA Switch: ROD



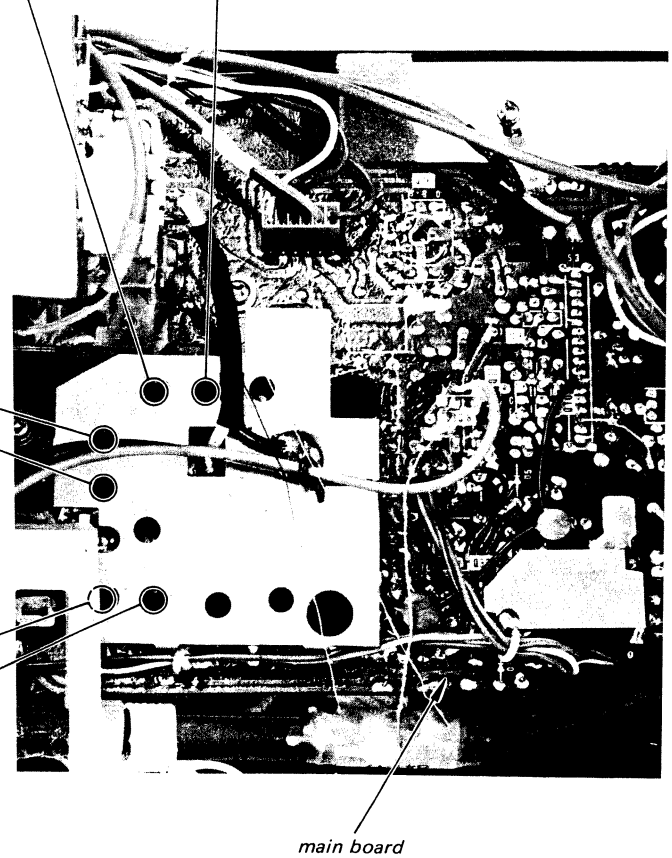


- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

SW3 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM.	
19.8 MHz	29.7 MHz
L10	CT8

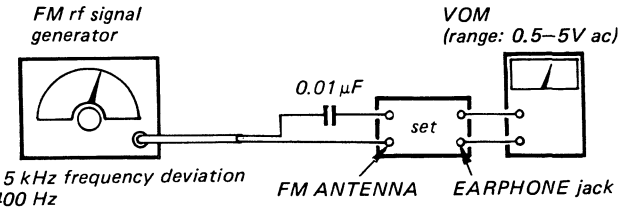
SW2 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM	
11.3 MHz	L9
20.3 MHz	CT7

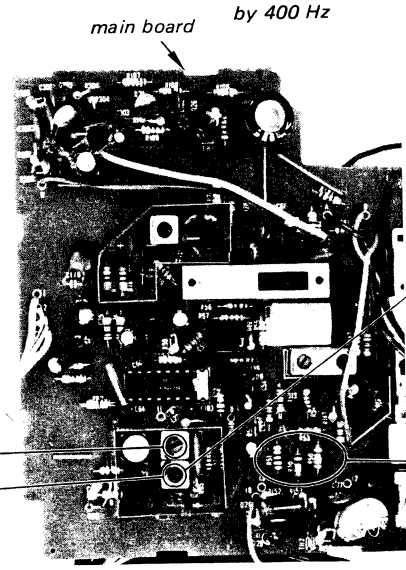
SW1 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM.	
10.3 MHz	CT6
1.55 MHz	L8



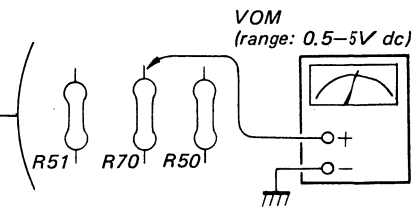
FM SECTION

Setting:
BAND SELECTOR Switch: FM

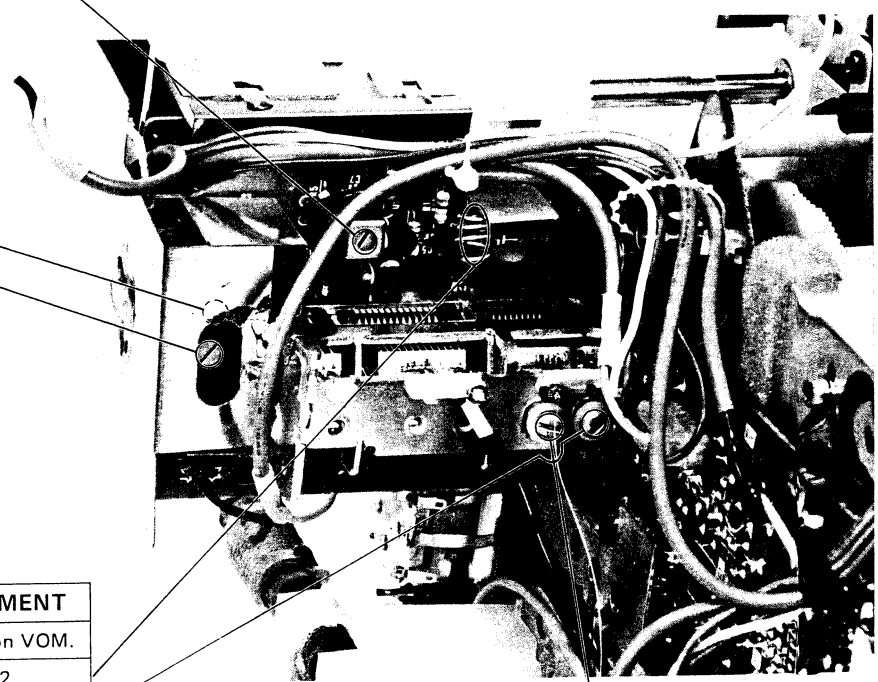




FM IF ALIGNMENT 2
Turn off the modulation. Connect VOM as shown below.
IFT F3
Adjust for 0V DC reading on VOM .



FM IF ALIGNMENT 1	
10.7 MHz	IFT F2
	IFT F3
	IFT F1
Adjust for maximum reading on VOM.	



FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM.	
87.1(87.5) MHz	L3
108.5 (108) MHz	CT2

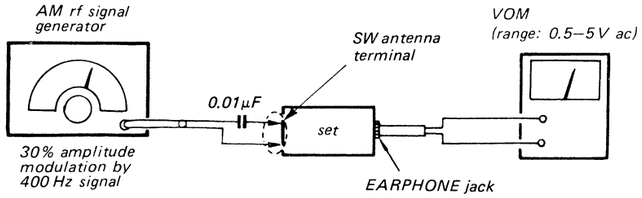
( ): AEP model

FM TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM.	
87.1(87.5) MHz	L2
108.5(108) MHz	CT1

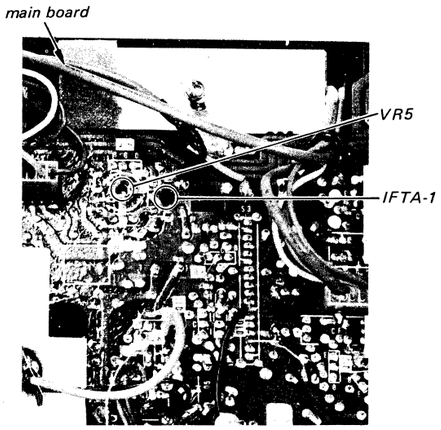
CT9 (Refer to the MW TRACKING ADJUSTMENT on page 21.)

SW 1ST MIXER BALANCE ADJUSTMENT

Setting:
BAND SELECTOR Switch: SW
SW ANTENNA Switch: EXT



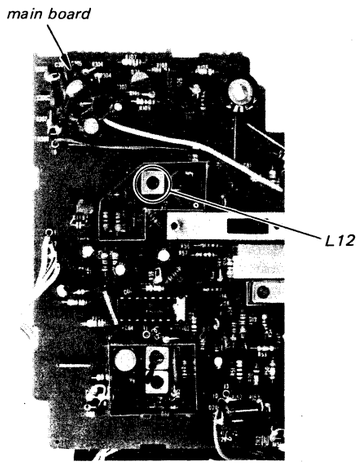
1. Set AM rf signal generator to 10.7 MHz.
2. Tune the set for maximum reading on VOM.
3. Adjust IFT A-1 for maximum reading on VOM.
4. Adjust VR5 for minimum reading on VOM.



BFO ADJUSTMENT

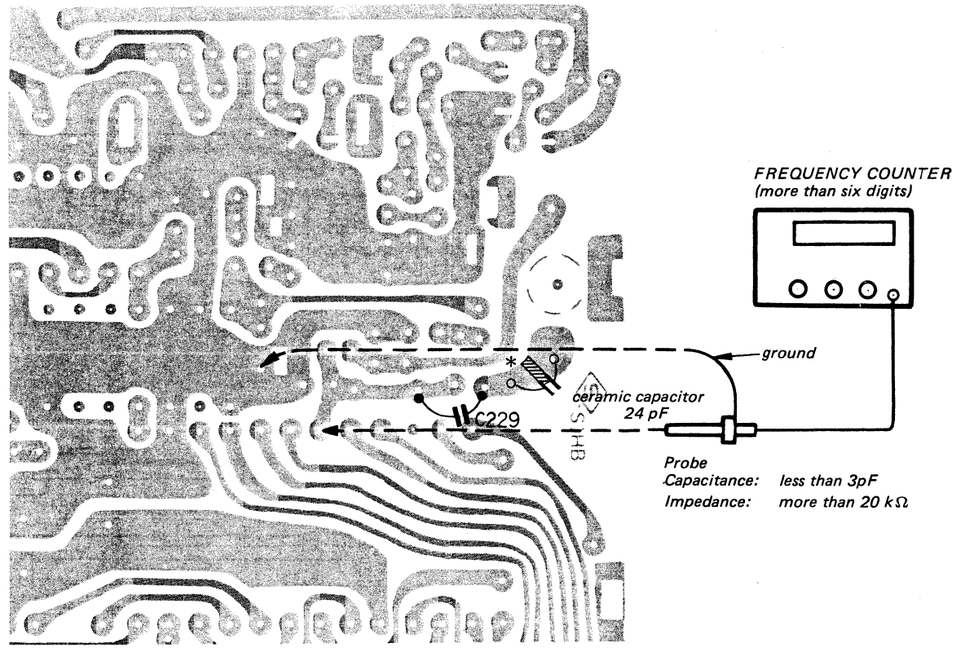
Setting: the same as the above.

1. Tune the set at mode of NARROW or WIDE and turn off the modulation.
2. Adjust L12 so that the sound level becomes equal at USB mode and LSB mode.



500 kHz OSCILLATOR ADJUSTMENT

[COUNTER BOARD]



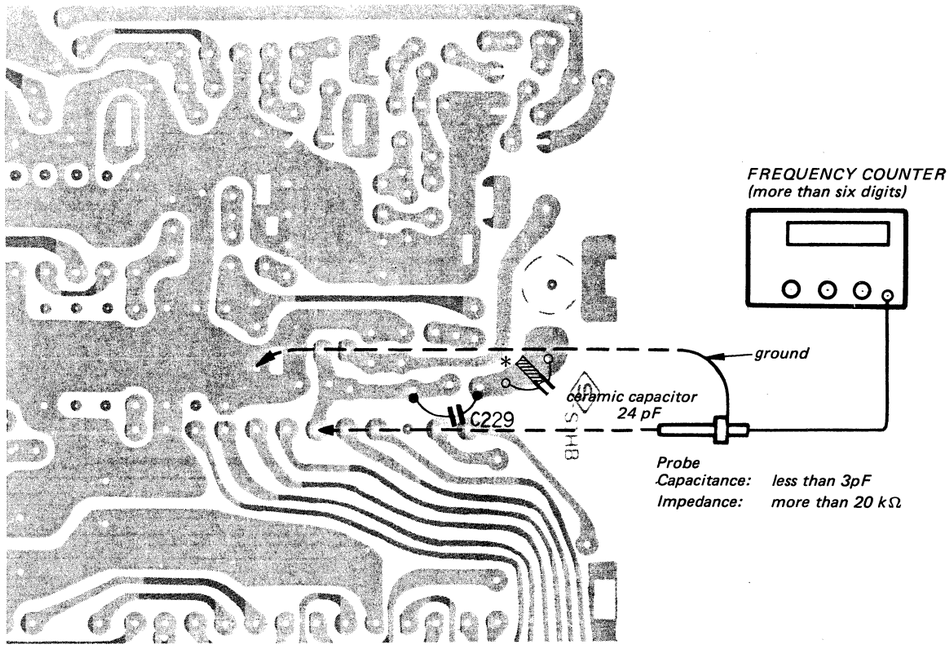
Setting:
FREQUENCY DISPLAY Switch: ON

Connect the frequency counter to pin 7 of IC6 as shown above.
The value of C229 is determined by the counter reading listed below.

Counter reading	Adjustment
499981–499992Hz	Cut the pattern marked*. Add the ceramic capacitor 24 pF. C229 is unnecessary.
499993–500006Hz	C229 is unnecessary.
500007–500018Hz	Select the value of C229 to 10pF.
500019–500031Hz	Select the value of C229 to 33pF.
500032–500044Hz	Select the value of C229 to 68pF.

500 kHz OSCILLATOR ADJUSTMENT

[COUNTER BOARD]

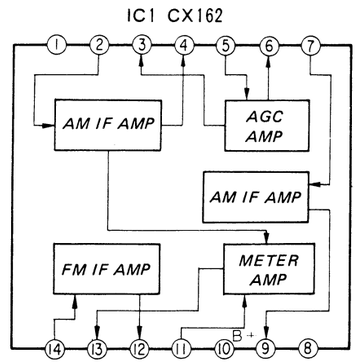


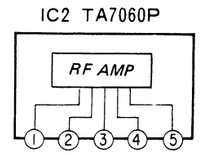
Setting:
FREQUENCY DISPLAY Switch: ON

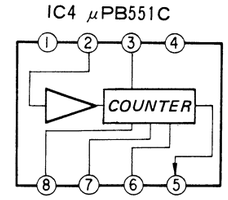
Connect the frequency counter to pin 7 of IC6 as shown above.
The value of C229 is determined by the counter reading listed below.

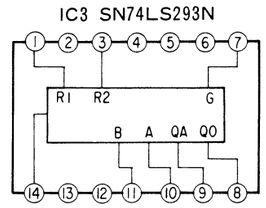
Counter reading	Adjustment
499981–499992Hz	Cut the pattern marked*. Add the ceramic capacitor 24 pF. C229 is unnecessary.
499993–500006Hz	C229 is unnecessary.
500007–500018Hz	Select the value of C229 to 10pF.
500019–500031Hz	Select the value of C229 to 33pF.
500032–500044Hz	Select the value of C229 to 68pF.

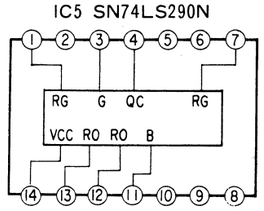
IC BLOCK DIAGRAM

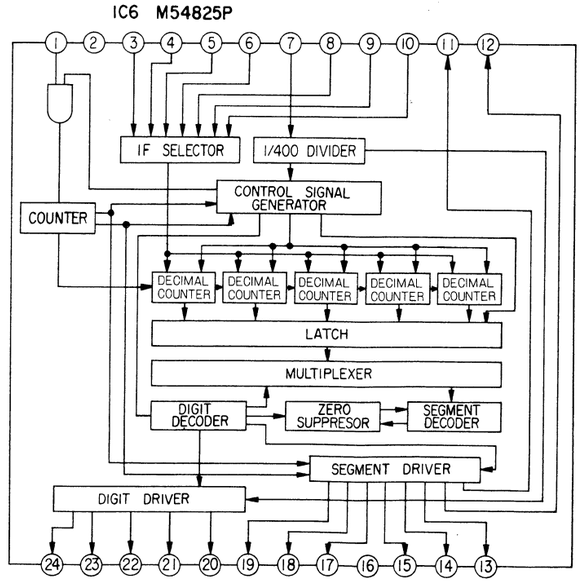












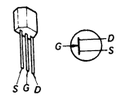
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

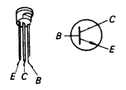
– Conductor Side –

Replacement Semiconductors
For replacement, use semiconductors except in ( ).

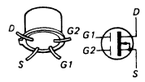
Q1, 32: 2SK42-2 (2SK42)
Q7: 2SK42-2 (2SK42-1)



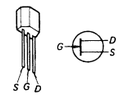
Q2, 5, 6, 9
Q10, 12, 13, 27 : 2SC930 (2SC930C)
Q3: 2SC668 (2SC668D)



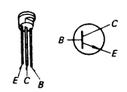
Q4: 3SK37



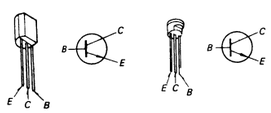
Q8: 2SK23A-824 (2SK23A)



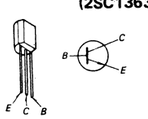
Q11: 2SC930 (2SC930E)



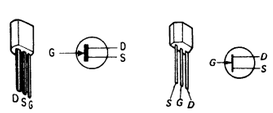
Q14: 2SC1364 (2SC930C)



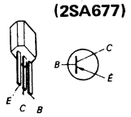
Q15, 19, 22, 25, 26
Q29–31, 40–47 : 2SC1364 (2SC1363)



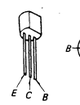
Q16, 17: 2SK107 (2SK23A)



Q18, 23, 35, 38: 2SA1027R (2SA677)

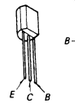


Q20: 2SC1474

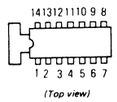


Q36, 39: 2SC930 (2SC930D)

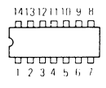
Q33, 34, 37: 2SC710 (2SC1908)



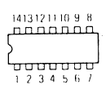
IC1: CX162



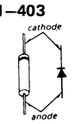
IC3: SN74LS293N



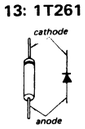
IC5: SN74LS290N



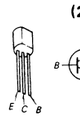
D1–8
D10, 11 : 1S1555
D15–18
D401–403



D12, 13: 1T261



Q21, 24: 2SA772-23 (2SA772)



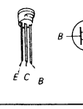
Q28: 2SA861

IC2: TA7060P

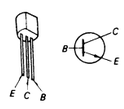
IC4: μPB551C

IC6: M54825P

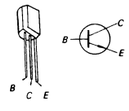
D9: 2SC930 (2SC930C)



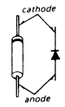
Q401: 2SC930
Q402: 2SC1364



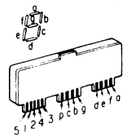
(2SC710)
(2SC710)



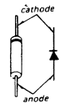
D19, 20: 10E2



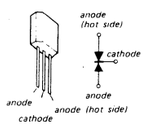
D22: SL1512



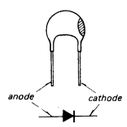
D14, 23: IT22AM (IT23)



D21: IS2139C (SD115)



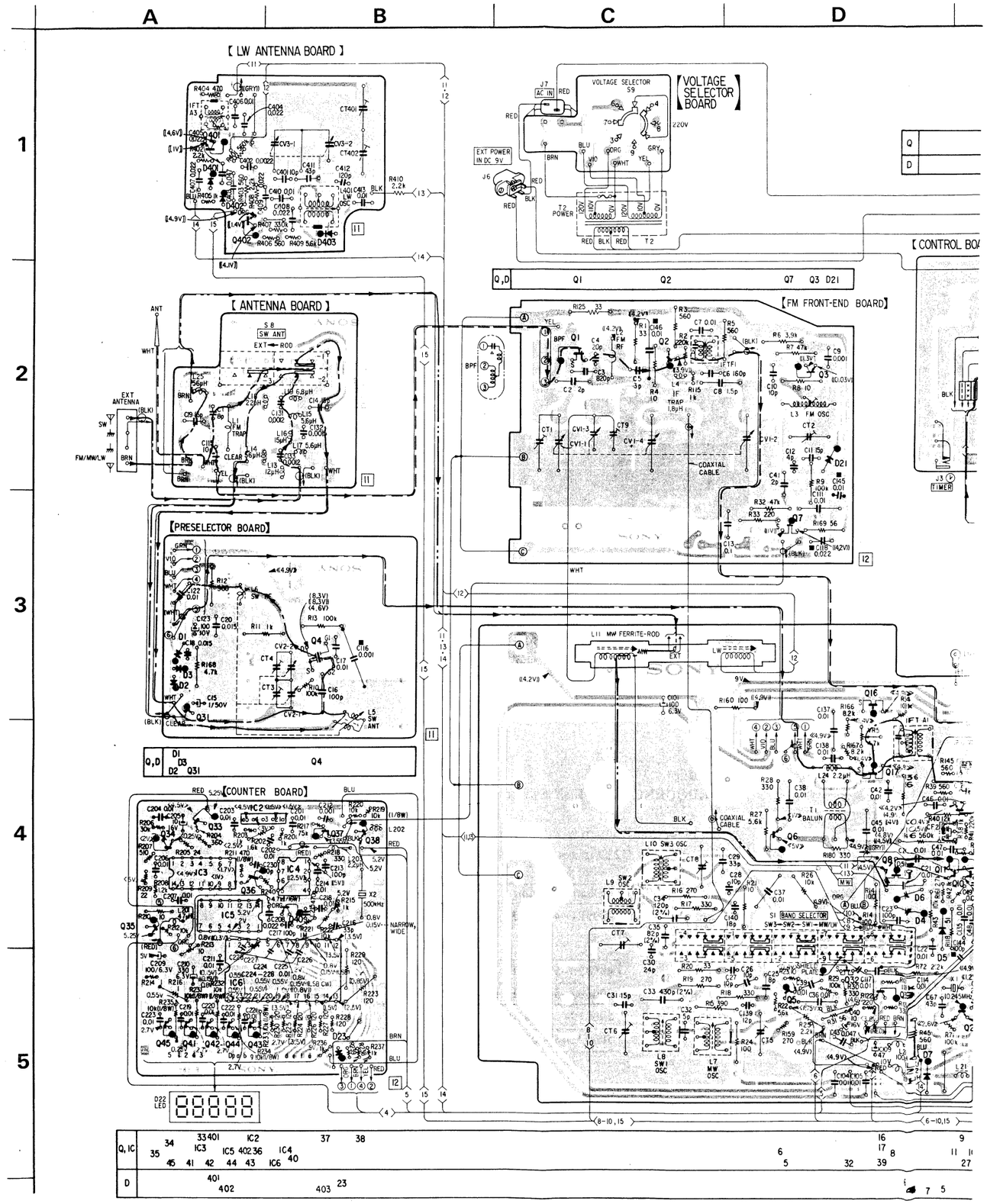
VDR1: VD1220



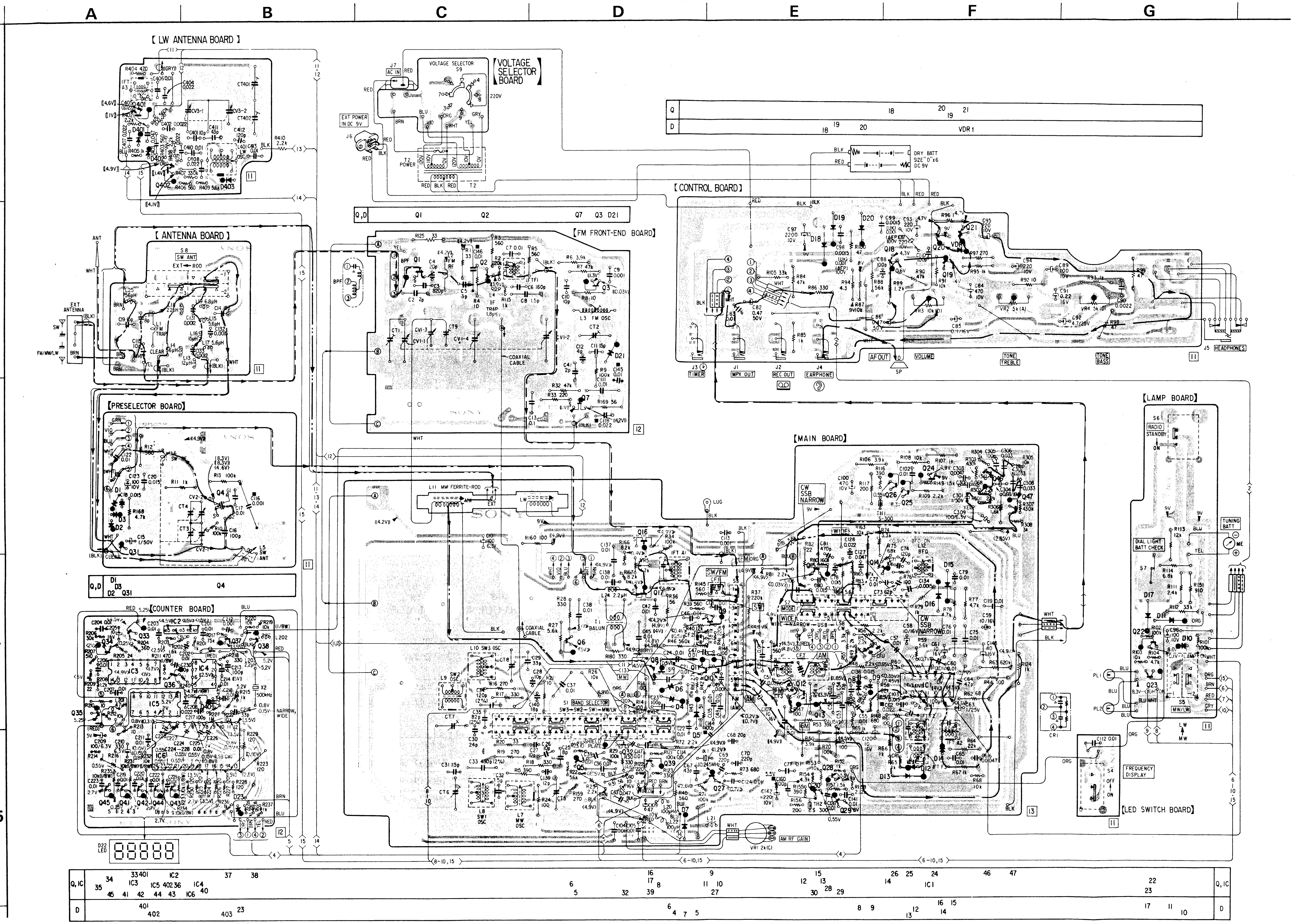
Note:

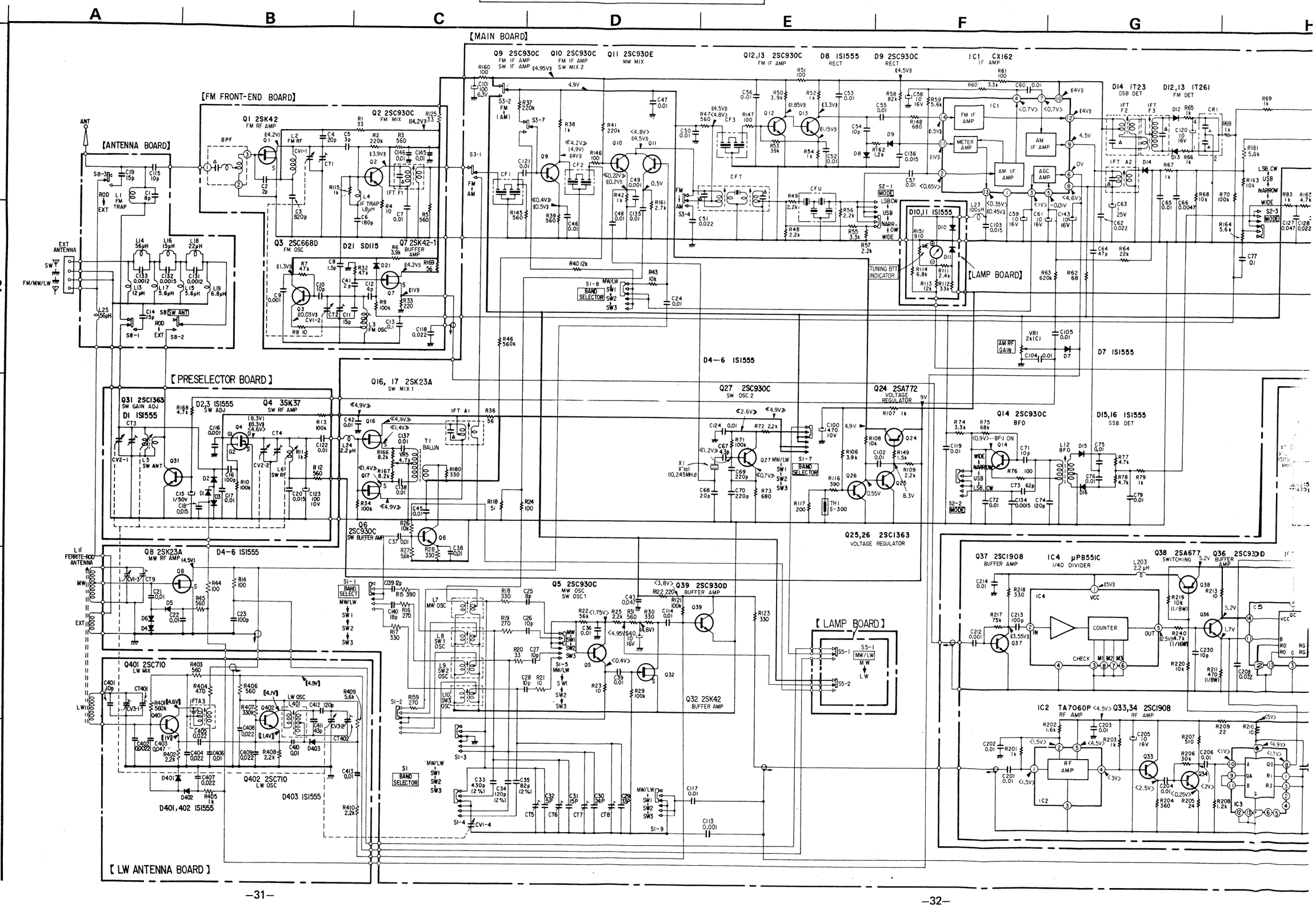
- : indicates side identified with part number.
- : B + pattern
- Signal Path
  - : FM
  - : SW
  - : MW

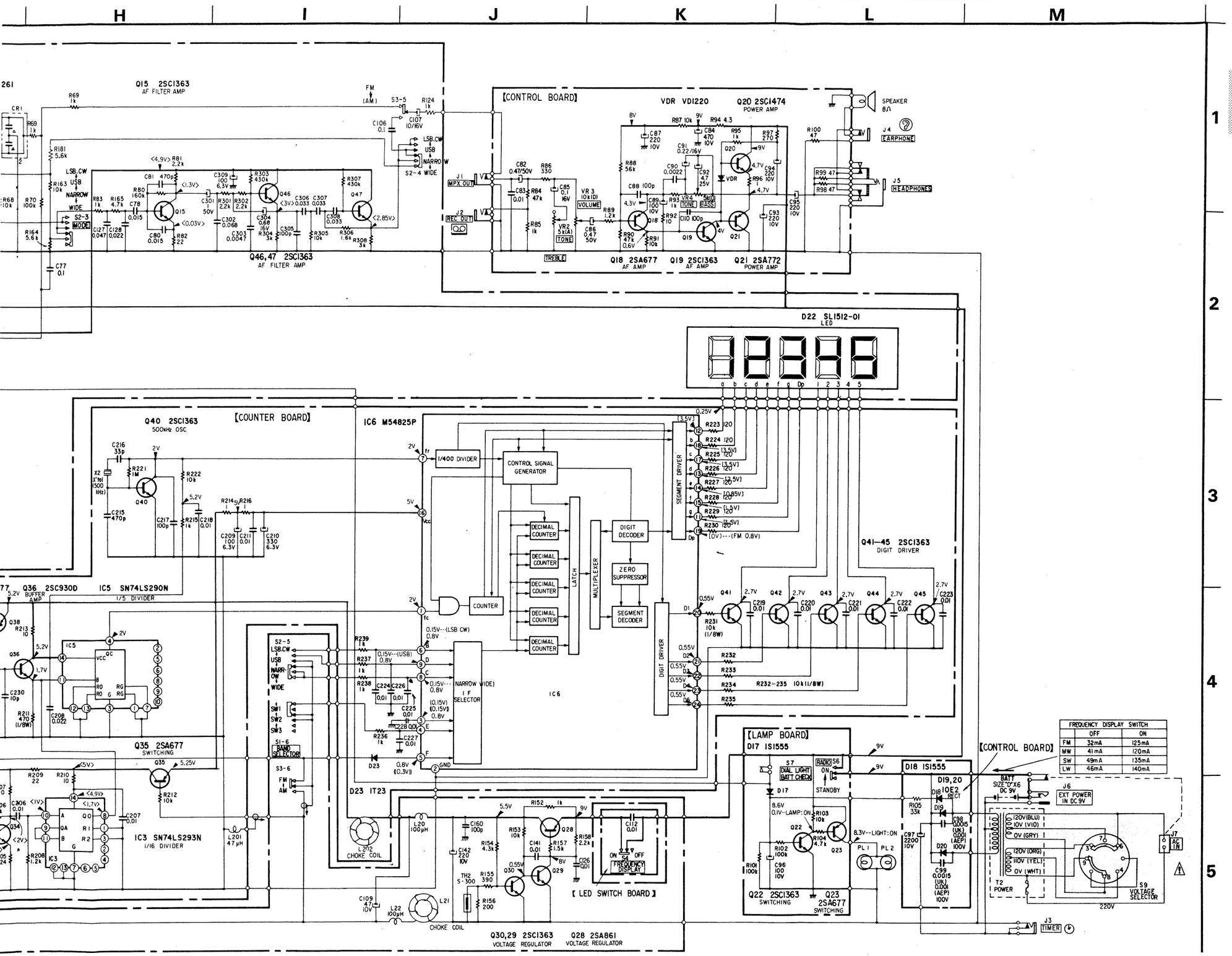
IC Block Diagram is listed on page 27.



ICF-6700L ICF-6700L


LW ANTENNA BOARD
VOLTAGE SELECTOR BOARD
EXT POWER IN DC 9V
DRY BATT SIZE "D" x6 DC 9V
CONTROL BOARD
FM FRONT-END BOARD
ANTENNA BOARD
PRESELECTOR BOARD
MAIN BOARD
LAMP BOARD
COUNTER BOARD
LED SWITCH BOARD
BAND SELECTOR
AM RF GAIN
FREQUENCY DISPLAY
DIAL LIGHT BATT CHECK
TUNING BATT
HEADPHONES
TIMER
MPX OUT
REC OUT
EARPHONE
AF OUT
VOLUME
TONE TREBLE
TONE BASS


A
B
C
D
E
F
G
1
2
3
4
5
[MAIN BOARD]
[FM FRONT-END BOARD]
[ANTENNA BOARD]
[PRESELECTOR BOARD]
[LW ANTENNA BOARD]
[LAMP BOARD]
Q9 2SC930C FM IF AMP SW IF AMP
Q10 2SC930C FM IF AMP SW MIX 2
Q11 2SC930E MW MIX
Q12,13 2SC930C FM IF AMP
D8 1SI555 RECT
D9 2SC930C RECT
IC1 CX162 IF AMP
D14 1T23 DSB DET
D12,13 1T261 FM DET
Q1 2SK42 FM RF AMP
Q2 2SC930C FM MIX
Q3 2SC668D FM OSC
D21 SD115
Q7 2SK42-1 BUFFER AMP
Q31 2SC1363 SW GAIN ADJ
D1 1SI555
D2,3 1SI555 SW ADJ
Q4 3SK37 SW RF AMP
Q16, 17 2SK23A SW MIX 1
Q27 2SC930C SW OSC 2
Q24 2SA772 VOLTAGE REGULATOR
Q14 2SC930C BFO
D15,16 1SI555 SSB DET
D4—6 1SI555
D7 1SI555
Q6 2SC930C SW BUFFER AMP
Q25,26 2SC1363 VOLTAGE REGULATOR
Q8 2SK23A MW RF AMP
D4—6 1SI555
Q5 2SC930C MW OSC SW OSC 1
Q39 2SC930D BUFFER AMP
Q32 2SK42 BUFFER AMP
Q401 2SC710 LW MIX
Q402 2SC710 LW OSC
D403 1SI555
D401,402 1SI555
Q37 2SC1908 BUFFER AMP
IC4 μPB551C 1/40 DIVIDER
Q38 2SA677 SWITCHING
Q36 2SC930D BUFFER AMP
IC2 TA7060P RF AMP
Q33,34 2SC1908 RF AMP
IC3
S1 BAND SELECTOR
S2 MODE
S3 FM-AM
S5 MW/LW
S8 SW ANT
ANT
EXT ANTENNA
FERRITE-ROD ANTENNA
TUNING BTT INDICATOR
AM RF GAIN
VR1 2k(C)
X1 X'tal (10,245MHz)
TH1 S-300
LSB CW
USB
NARROW
WIDE



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

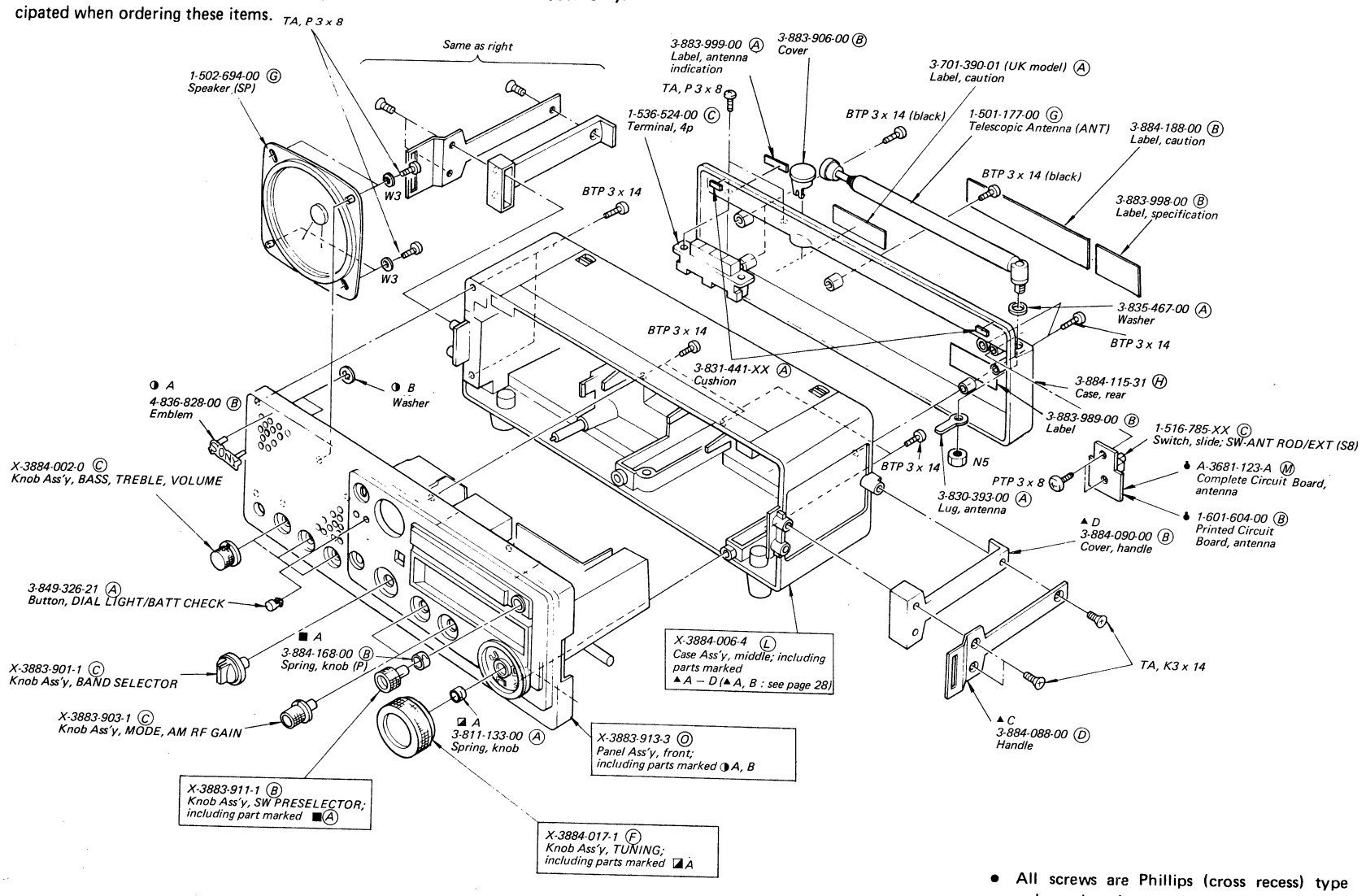
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω;MΩ : 1000kΩ
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬ : B + bus.
- Voltage variations may be noted due to normal production tolerances.
- Transistor base-emitter voltages are measured on the 2.5V range.
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
  - ⋘ ⋙ : SW
  - < > : AM
  - ( ) : MW
  - [[ ]] : LW
  - (( )) : FM
  - [ ] : When receiving 12.345 kHz signal.
- Switch

Ref. No.	Switch	Position
S1	BAND SELECTOR	LW/MW
S2	MODE	WIDE
S3	FM-AM	FM
S4	FREQUENCY DISPLAY	ON
S5	LW/MW	MW
S6	RADIO	OFF
S7	DIAL LIGHT/ BATT CHECK	OFF
S8	SW ANT	ROD
S9	VOLTAGE SELECTOR	120V

- Transistor is used for D9.
- Δ : internal component.
- 2% indicates component tolerances.

- Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

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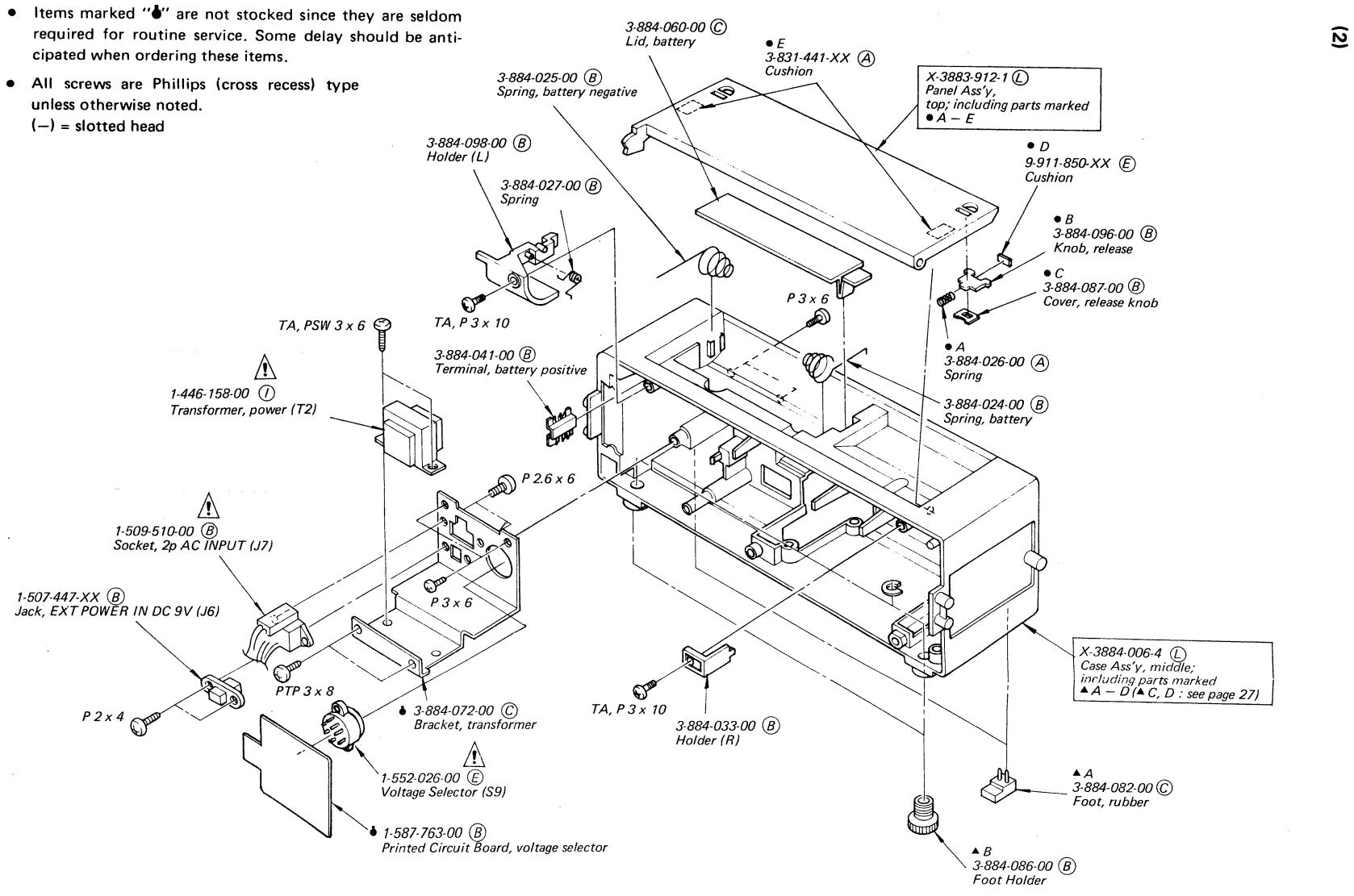
  (–) = slotted head



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

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- Circled letters (Ⓐ to Ⓩ) are applicable to European

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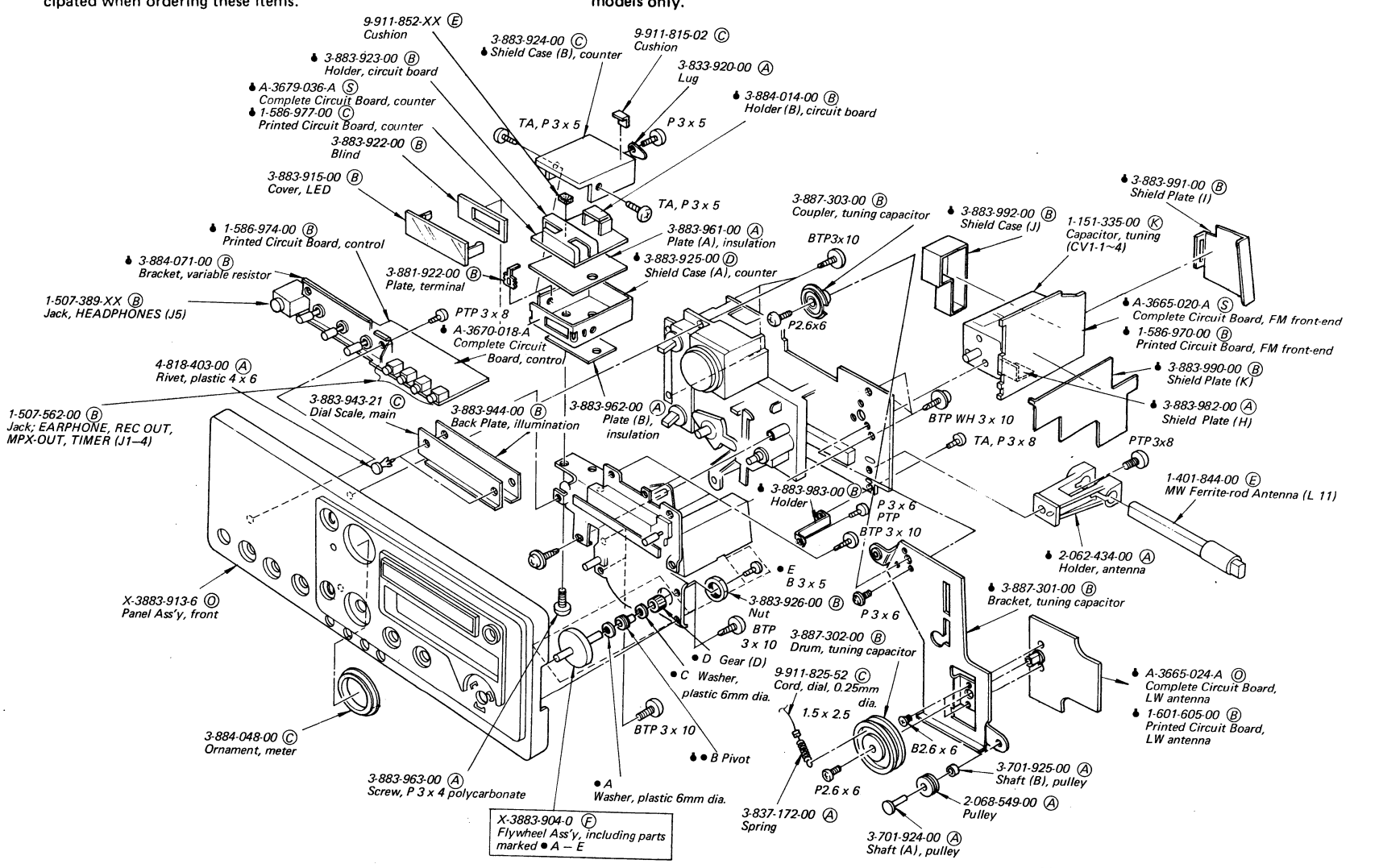
9-911-852-XX Ⓔ Cushion
3-883-924-00 Ⓒ ♦ Shield Case (B), counter
9-911-815-02 Ⓒ Cushion
3-883-923-00 Ⓑ ♦ Holder, circuit board
3-833-920-00 Ⓐ Lug
♦ A-3679-036-A Ⓢ Complete Circuit Board, counter
♦ 1-586-977-00 Ⓒ Printed Circuit Board, counter
3-884-014-00 Ⓑ ♦ Holder (B), circuit board
TA, P 3 x 5
P 3 x 5
3-883-922-00 Ⓑ Blind
3-883-915-00 Ⓑ Cover, LED
TA, P 3 x 5
3-887-303-00 Ⓑ Coupler, tuning capacitor
♦ 3-883-992-00 Ⓑ Shield Case (J)
♦ 3-883-991-00 Ⓑ Shield Plate (I)
1-151-335-00 Ⓚ Capacitor, tuning (CV1-1~4)
♦ 1-586-974-00 Ⓑ Printed Circuit Board, control
3-883-961-00 Ⓐ Plate (A), insulation
BTP3x10
♦ 3-884-071-00 Ⓑ Bracket, variable resistor
♦ 3-883-925-00 Ⓓ Shield Case (A), counter
3-881-922-00 Ⓑ Plate, terminal
1-507-389-XX Ⓑ Jack, HEADPHONES (J5)
PTP 3 x 8
P2.6x6
♦ A-3670-018-A Complete Circuit Board, control
♦ A-3665-020-A Ⓢ Complete Circuit Board, FM front-end
♦ 1-586-970-00 Ⓑ Printed Circuit Board, FM front-end
4-818-403-00 Ⓐ Rivet, plastic 4 x 6
♦ 3-883-990-00 Ⓑ Shield Plate (K)
3-883-943-21 Ⓒ Dial Scale, main
3-883-944-00 Ⓑ Back Plate, illumination
3-883-962-00 Ⓐ Plate (B), insulation
♦ 3-883-982-00 Ⓐ Shield Plate (H)
1-507-562-00 Ⓑ Jack; EARPHONE, REC OUT, MPX-OUT, TIMER (J1–4)
BTP WH 3 x 10
TA, P 3 x 8
PTP3x8
♦ 3-883-983-00 Ⓑ Holder
P 3 x 6 PTP
1-401-844-00 Ⓔ MW Ferrite-rod Antenna (L 11)
BTP 3 x 10
♦ 2-062-434-00 Ⓐ Holder, antenna
X-3883-913-6 Ⓞ Panel Ass'y, front
• E
B 3 x 5
♦ 3-887-301-00 Ⓑ Bracket, tuning capacitor
♦ 3-883-926-00 Ⓑ Nut
P 3 x 6
BTP 3 x 10
3-887-302-00 Ⓑ Drum, tuning capacitor
• D Gear (D)
• C Washer, plastic 6mm dia.
9-911-825-52 Ⓒ Cord, dial, 0.25mm dia.
♦ A-3665-024-A Ⓞ Complete Circuit Board, LW antenna
1.5 x 2.5
♦ 1-601-605-00 Ⓑ Printed Circuit Board, LW antenna
BTP 3 x 10
B2.6 x 6
3-884-048-00 Ⓒ Ornament, meter
♦• B Pivot
3-701-925-00 Ⓐ Shaft (B), pulley
P2.6 x 6
3-883-963-00 Ⓐ Screw, P 3 x 4 polycarbonate
• A Washer, plastic 6mm dia.
2-068-549-00 Ⓐ Pulley
3-837-172-00 Ⓐ Spring
3-701-924-00 Ⓐ Shaft (A), pulley
X-3883-904-0 Ⓕ Flywheel Ass'y, including parts marked • A – E

- All screws are Phillips (cross recess) type unless otherwise noted.
(–) = slotted head

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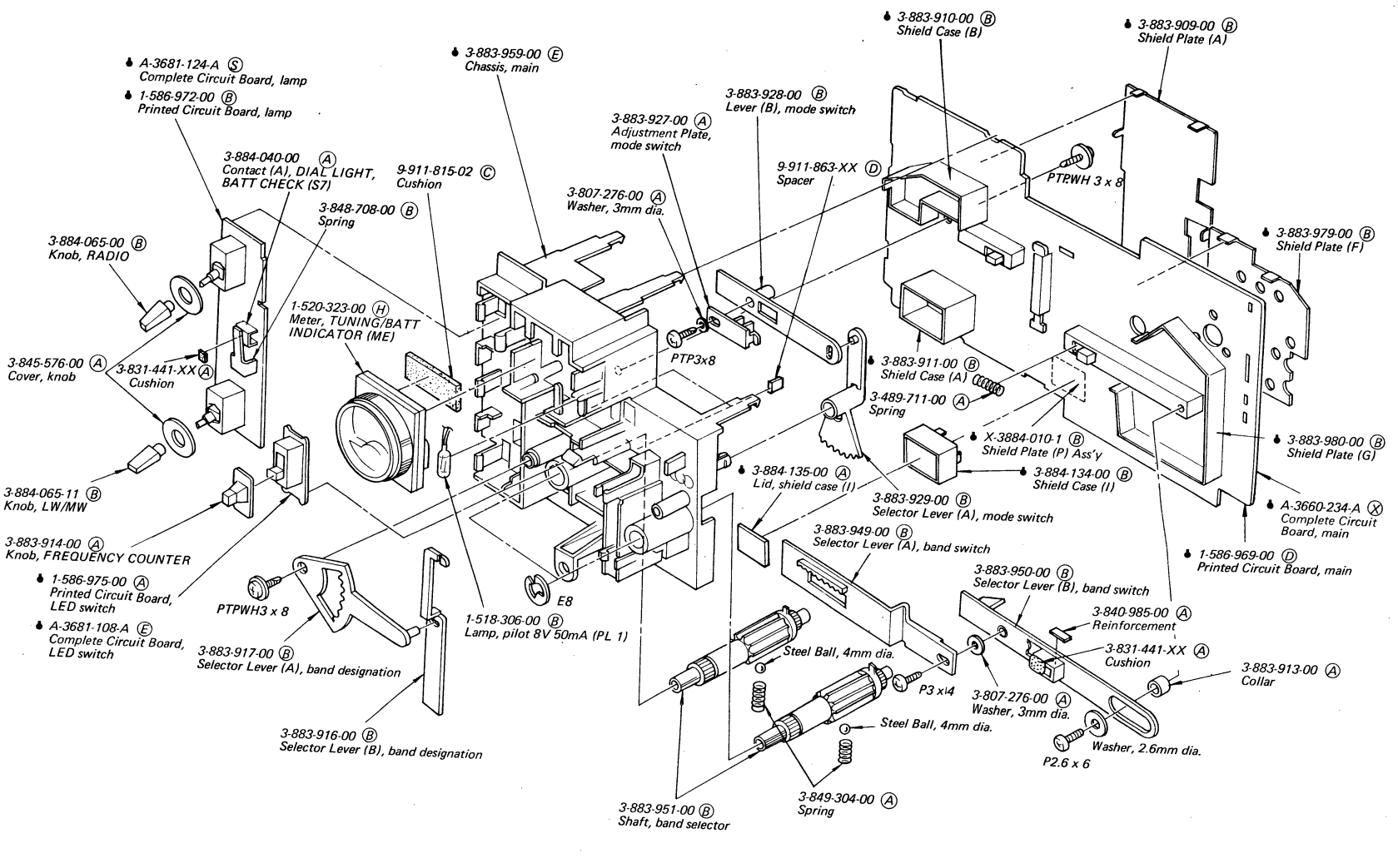
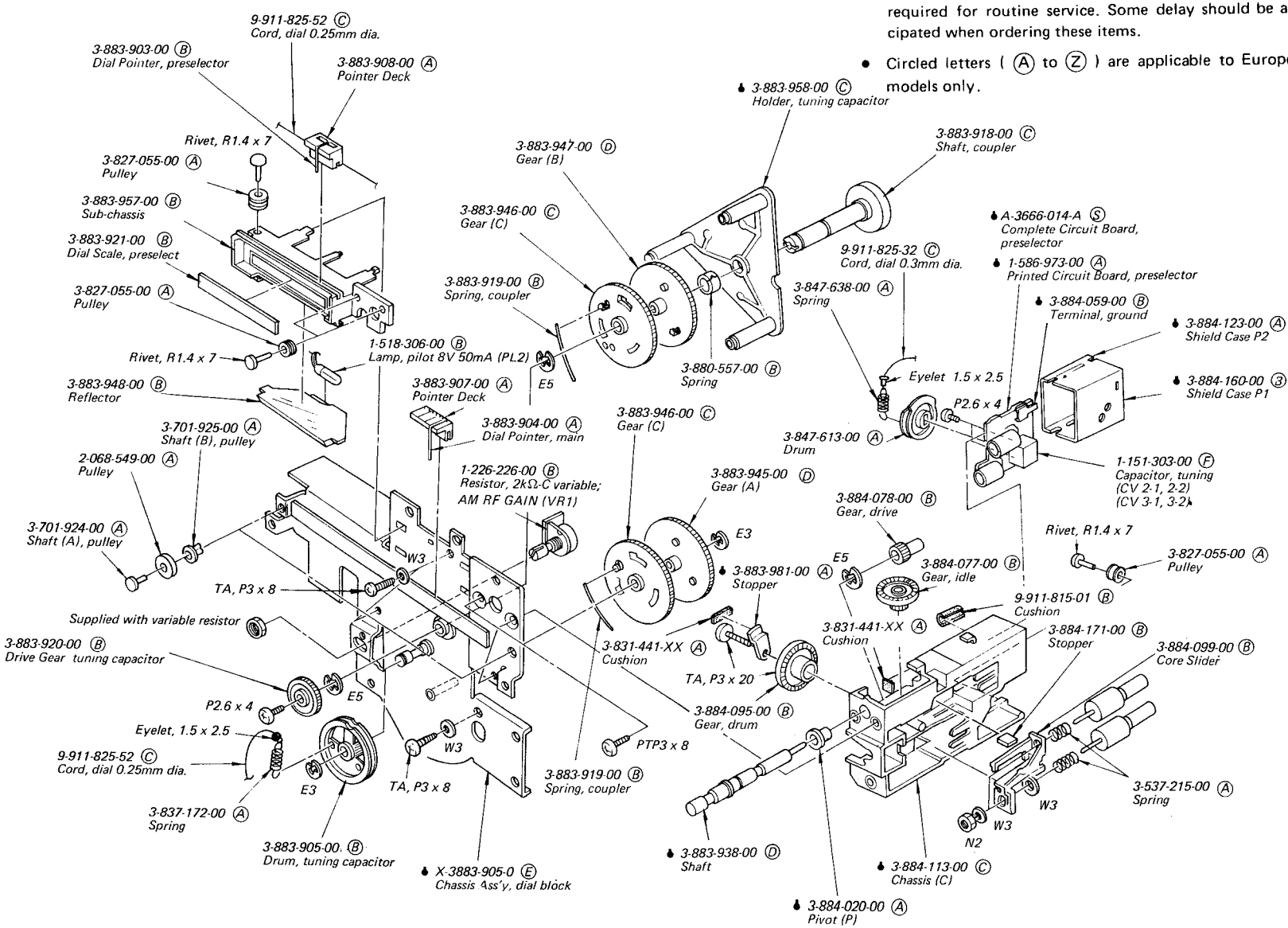

♦ A-3681-124-A Ⓢ Complete Circuit Board, lamp
♦ 1-586-972-00 Ⓑ Printed Circuit Board, lamp
♦ 3-883-959-00 Ⓔ Chassis, main
♦ 3-883-910-00 Ⓑ Shield Case (B)
♦ 3-883-909-00 Ⓑ Shield Plate (A)
3-884-040-00 Ⓐ Contact (A), DIAL LIGHT, BATT CHECK (S7)
9-911-815-02 Ⓒ Cushion
3-883-928-00 Ⓑ Lever (B), mode switch
3-883-927-00 Ⓐ Adjustment Plate, mode switch
3-848-708-00 Ⓑ Spring
9-911-863-XX Ⓓ Spacer
PTPWH 3 x 8
3-807-276-00 Ⓐ Washer, 3mm dia.
3-884-065-00 Ⓑ Knob, RADIO
♦ 3-883-979-00 Ⓑ Shield Plate (F)
1-520-323-00 Ⓗ Meter, TUNING/BATT INDICATOR (ME)
PTP3x8
3-845-576-00 Ⓐ Cover, knob
3-831-441-XX Ⓐ Cushion
♦ 3-883-911-00 Ⓑ Shield Case (A)
3-489-711-00 Ⓐ Spring
♦ X-3884-010-1 Ⓑ Shield Plate (P) Ass'y
♦ 3-883-980-00 Ⓑ Shield Plate (G)
♦ 3-884-135-00 Ⓐ Lid, shield case (I)
♦ 3-884-134-00 Ⓑ Shield Case (I)
3-884-065-11 Ⓑ Knob, LW/MW
3-883-929-00 Ⓑ Selector Lever (A), mode switch
♦ A-3660-234-A Ⓧ Complete Circuit Board, main
3-883-914-00 Ⓐ Knob, FREQUENCY COUNTER
3-883-949-00 Ⓑ Selector Lever (A), band switch
♦ 1-586-969-00 Ⓓ Printed Circuit Board, main
3-883-950-00 Ⓑ Selector Lever (B), band switch
♦ 1-586-975-00 Ⓐ Printed Circuit Board, LED switch
PTPWH3 x 8
E8
1-518-306-00 Ⓑ Lamp, pilot 8V 50mA (PL 1)
3-840-985-00 Ⓐ Reinforcement
♦ A-3681-108-A Ⓔ Complete Circuit Board, LED switch
3-883-917-00 Ⓑ Selector Lever (A), band designation
Steel Ball, 4mm dia.
3-831-441-XX Ⓐ Cushion
3-883-913-00 Ⓐ Collar
P3 x14
3-807-276-00 Ⓐ Washer, 3mm dia.
Steel Ball, 4mm dia.
Washer, 2.6mm dia.
P2.6 x 6
3-883-916-00 Ⓑ Selector Lever (B), band designation
3-849-304-00 Ⓐ Spring
3-883-951-00 Ⓑ Shaft, band selector

- All screws are Phillips (cross recess) type unless otherwise noted.
(–) = slotted head



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  (–) = slotted head

SECTION 6
ELECTRICAL PARTS LIST

Note:
Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.	Description
		SEMICONDUCTORS
		Transistors
⇒ Q1	8-727-312-00	Ⓒ 2SK42-2
⇒ Q2	8-729-803-04	Ⓑ 2SC930
⇒ Q3	8-729-806-84	Ⓑ 2SC668
Q4	8-722-762-00	Ⓕ 3SK37
⇒ Q5, 6	8-729-803-04	Ⓑ 2SC930
⇒ Q7	8-727-312-00	Ⓒ 2SK42-2
Q8	8-722-382-04	Ⓔ 2SK23A-824
⇒ Q9-13	8-729-803-04	Ⓑ 2SC930
⇒ Q14, 15	8-729-663-47	Ⓒ 2SC1364
⇒ Q16, 17	8-769-010-35	Ⓑ 2SK107
⇒ Q18	8-729-612-77	Ⓑ 2SA1027R
⇒ Q19	8-729-663-47	Ⓒ 2SC1364
Q20	8-760-335-10	Ⓑ 2SC1474
⇒ Q21	8-760-523-10	Ⓒ 2SA772-23
⇒ Q22	8-729-663-47	Ⓒ 2SC1364
⇒ Q23	8-729-612-77	Ⓑ 2SA1027R
⇒ Q24	8-760-523-10	Ⓒ 2SA772-23
⇒ Q25, 26	8-729-663-47	Ⓒ 2SC1364
⇒ Q27	8-729-803-04	Ⓑ 2SC930
Q28	8-763-213-00	Ⓒ 2SA861
⇒ Q29-31	8-729-663-47	Ⓒ 2SC1364
⇒ Q32	8-727-312-00	Ⓒ 2SK42-2
⇒ Q33, 34	8-729-671-15	Ⓑ 2SC710-15
⇒ Q35	8-729-612-77	Ⓑ 2SA1027R
⇒ Q36	8-729-803-04	Ⓑ 2SC930
⇒ Q37	8-729-671-15	Ⓑ 2SC710-15
⇒ Q38	8-729-612-77	Ⓑ 2SA1027R
⇒ Q39	8-729-803-04	Ⓑ 2SC930
⇒ Q40-47	8-729-663-47	Ⓒ 2SC1364
⇒ Q401	8-729-803-04	Ⓑ 2SC930
⇒ Q402	8-729-663-47	Ⓒ 2SC1364
		ICs
IC1	8-751-620-00	Ⓗ CX162
IC2	8-759-270-60	Ⓓ TA7060P
IC3	8-759-902-93	Ⓕ SN74LS293N
IC4	8-759-155-10	Ⓚ μPB551C
IC5	8-759-902-90	Ⓕ SN74LS290N
IC6	8-759-648-25	Ⓝ M54825P
		Diodes
D1-8	8-719-815-55	Ⓑ 1S1555
⇒ D9	8-729-803-04	Ⓑ 2SC930
D10, 11	8-719-815-55	Ⓑ 1S1555
D12, 13	8-719-026-11	Ⓐ 1T261
⇒ D14	8-719-422-21	Ⓑ 1T22AM
D15-18	8-719-815-55	Ⓑ 1S1555
D19, 20	⚠ 8-719-200-02	Ⓑ 10E2
⇒ D21	8-719-713-93	Ⓑ 1S2139C
D22	8-719-905-11	Ⓛ SL1512-01
⇒ D23	8-719-422-21	Ⓑ 1T22AM
D401-403	8-719-815-55	Ⓑ 1S1555
VDR1	8-719-122-00	Ⓑ VC1220
		Thermistor
Th1, 2	1-800-071-XX	Ⓐ S-300
		COILS
• L1	1-401-456-00	Ⓑ FM Antenna
• L2	1-420-856-00	Ⓐ FM RF
• L3	1-420-922-00	Ⓑ FM Osc
L4	1-407-181-XX	Ⓐ Microinductor, 1.8μH
L5	1-401-715-00	Ⓕ SW Antenna
L6	1-401-716-00	Ⓕ SW RF
L7	1-405-787-00	Ⓑ MW Osc
L8	1-405-788-00	Ⓑ SW1 Osc
L9	1-405-789-00	Ⓑ SW2 Osc
L10	1-405-790-00	Ⓑ SW3 Osc
L11	1-401-844-00	Ⓔ MW Ferrite-rod Antenna
L12	1-405-807-00	Ⓑ BFO
L13	1-407-158-XX	Ⓐ Microinductor, 12μH
L14, 25	1-407-166-XX	Ⓐ Microinductor, 5.6μH
L15, 17	1-407-187-XX	Ⓐ Microinductor, 5.6μH
L16	1-407-159-XX	Ⓐ Microinductor, 15μH

- ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.
- Items marked "•" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.	Description
L18	1-407-161-XX	Ⓑ Microinductor, 22μH
L19	1-407-188-XX	Ⓐ Microinductor, 6.8μH
L20, 22, 23	1-407-169-XX	Ⓐ Microinductor, 100μH
L21	1-407-856-00	Ⓒ Choke
L24	1-407-182-XX	Ⓐ Microinductor, 2.2μH
L201	1-407-165-XX	Ⓑ Microinductor, 47μH
L202	1-407-856-00	Ⓒ Choke
L203	1-407-182-XX	Ⓐ Microinductor, 2.2μH
L401	1-405-896-00	Ⓑ LW Osc

TRANSFORMERS

CFT	1-403-144-00	Ⓒ IFT, triple tuning
T1	1-417-064-00	Ⓑ Balun
T2	⚠1-446-158-00	Ⓘ Power
IFT A-1	1-404-021-00	Ⓑ AM IFT
IFT A-2	1-404-100-00	Ⓑ AM IFT
IFT A-3	1-404-236-00	Ⓑ AM IFT
IFT F-1	1-403-872-00	Ⓑ FM IFT
IFT F-2	1-403-959-00	Ⓑ FM Discriminator
IFT F-3	1-403-953-00	Ⓑ FM Discriminator

CAPACITORS

All capacitors are in μF. Common capacitors are omitted. Refer to the list on pages 43 and 44 for their part numbers.

C97	⚠1-123-074-00	Ⓐ 2200	10V	elect	
C98, 99	⚠1-108-367-00	Ⓐ 0.0015	100V	mylar	(UK model)
	⚠1-108-377-00	Ⓐ 0.01	100V	mylar	(AEP model)
CT2	1-141-138-XX	Ⓐ Trimmer			
CT5	1-141-140-XX	Ⓑ Trimmer			
CT6-8	1-141-180-00	Ⓑ Trimmer			
CT401, 402	1-141-171-00	Ⓑ Trimmer			
CV1	1-151-335-00	Ⓚ Tuning			
CV2, 3	1-151-303-00	Ⓕ Tuning			

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on page 2 for their part numbers.

Ref. No.	Part No.	Description
R96	1-247-071-00	Ⓐ 1 ¼W carbon (nonflammable)
VR1	1-226-226-00	Ⓑ 2k-C; variable; AM RF GAIN
VR2	1-226-162-00	Ⓒ 5k-A; variable; TONE TREBLE
VR3	1-226-161-00	Ⓒ 10k-D; variable; VOLUME
VR4	1-226-163-00	Ⓒ 5k-D; variable; TONE BASS
VR5	1-224-251-XX	Ⓑ 4.7k-B; adjustable; SW 1ST MIXER BALANCE

SWITCHES

S1	1-514-316-00	Ⓓ Slide; BAND SELECT
S2	1-513-281-00	Ⓒ Slide; MODE
S3	1-514-861-XX	Ⓒ Slide; AM/FM
S4	1-552-327-00	Ⓔ Slide; FREQUENCY DISPLAY
S5	1-552-128-00	Ⓒ Lever slide; LW/MW
S6	1-552-127-00	Ⓑ Lever slide, RADIO
S7	3-848-708-00	Ⓑ Spring
	3-884-040-00	Ⓐ Contact(A) DIGITAL LIGHT, BATT CHECK
S8	1-516-785-XX	Ⓒ Slide, SW ANT
S9	⚠1-552-026-00	Ⓔ Voltage Selector

JACKS

J1-4	1-507-562-00	Ⓑ EARPHONES, REC-OUT, MPX-OUT, TIMER
J5	1-507-389-XX	Ⓑ HEADPHONES
J6	1-507-447-XX	Ⓑ EXT POWER IN DC9V
J7	⚠1-509-510-00	Ⓑ Socket, AC INPUT

MISCELLANEOUS

ANT	1-501-177-00	Ⓖ Telescopic Antenna
BPF1	1-231-392-00	Ⓑ Bandpass Filter
CF1-3	1-527-184-XX	Ⓑ Ceramic Filter, 10.7MHz
CFU	1-527-319-00	Ⓔ Ceramic Filter
CR1	1-231-202-00	Ⓐ Encapsulated Component
ME	1-520-323-00	Ⓗ Meter, TUNING/BATT INDICATOR
PL1, 2	1-518-306-00	Ⓑ Lamp, pilot 8V 50mA
SP	1-502-694-00	Ⓖ Speaker

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description
X1	1-527-339-00	(E) Crystal, 10.245MHz
X2	1-527-269-51	(K) Crystal, 500kHz
	1-536-524-00	(C) Terminal, 4p; SW, MW

Complete Circuit Boards

♦	A-3660-234-A	(X) Main
♦	A-3665-020-A	(S) FM front-end
♦	A-3665-024-A	(O) LW antenna
♦	A-3666-014-A	(S) Preselector
♦	A-3670-018-A	Control
♦	A-3679-036-A	(S) Counter
♦	A-3681-108-A	(E) LED switch
♦	A-3681-123-A	(M) Antenna
♦	A-3681-124-A	(S) Lamp

Printed Circuit Boards

♦	1-586-969-00	(D) Main
♦	1-586-970-00	(B) FM front-end
♦	1-586-972-00	(B) Lamp
♦	1-586-973-00	(A) Preselector
♦	1-586-974-00	(B) Control
♦	1-586-975-00	(A) LED switch
♦	1-586-977-00	(C) Counter
♦	1-587-763-00	(B) Voltage selector
♦	1-601-604-00	(B) Antenna
♦	1-601-605-00	(B) LW antenna

• Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

ACCESSORIES AND PACKING MATERIALS

Part No.	Description
⚠1-534-218-13	(Z) Cord, power; DK-50 (UK model)
⚠1-534-840-XX	(E) Cord, power; DK-38 (AEP model)
3-551-895-00	(C) Bag. set protection
3-701-616-00	(A) Bag, plastic
3-701-627-00	(A) Bag, plastic; manual
3-884-119-00	(C) Cushion (L)
3-884-120-00	(C) Cushion (R)
3-884-176-00	(A) Rivet
3-887-305-00	(E) Carton
3-993-171-11	(B) Leaflet
3-995-831-41	(D) Manual, instruction

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ELECTROLYTIC CAPACITORS

Note: Circled letter (Ⓐ to Ⓩ) are applicable to European models only.

RATING → : Use the high voltage rated one.

CAP. (μF)	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.	50 VOLT. PART No.
0.47					→	1-121-726-00 Ⓐ
1.0					→	1-121-391-00 Ⓐ
2.2					→	1-121-450-00 Ⓐ
3.3	→	→	→	1-121-392-00 Ⓐ	→	1-121-393-00 Ⓐ
4.7	→	→	→	1-121-395-00 Ⓐ	→	1-121-396-00 Ⓐ
10	→	→	1-121-651-00 Ⓐ	1-121-398-00 Ⓐ	→	1-121-738-00 Ⓐ
22	→	→	1-121-479-00 Ⓐ	1-121-480-00 Ⓐ	1-121-662-00 Ⓐ	1-121-152-00 Ⓐ
33	→	→	1-121-403-00 Ⓐ	1-121-404-00 Ⓐ	1-121-652-00 Ⓑ	1-121-405-00 Ⓐ
47	→	1-121-352-00 Ⓐ	1-121-409-00 Ⓐ	1-121-410-00 Ⓐ	1-121-653-00 Ⓑ	1-121-411-00 Ⓐ
100	→	1-121-414-00 Ⓐ	1-121-415-00 Ⓐ	1-121-416-00 Ⓐ	1-121-357-00 Ⓑ	1-121-417-00 Ⓑ
220	1-121-419-00 Ⓑ	1-121-420-00 Ⓑ	1-121-421-00 Ⓐ	1-121-422-00 Ⓑ	1-121-261-00 Ⓒ	1-121-423-00 Ⓑ
330	1-121-751-00 Ⓑ	1-121-805-00 Ⓑ	1-121-521-00 Ⓒ	1-121-654-00 Ⓑ	1-121-655-00 Ⓓ	1-121-656-00 Ⓒ
470	1-121-424-00 Ⓑ	1-121-425-00 Ⓒ	1-121-426-00 Ⓒ	1-121-733-00 Ⓑ	1-121-361-00 Ⓔ	1-121-810-00 Ⓓ
1000	–	1-121-736-00 Ⓒ	1-121-245-00 Ⓓ	1-121-657-00 Ⓓ	1-121-388-00 Ⓔ	1-123-061-00 Ⓕ
2200	1-121-658-00 Ⓑ	1-121-659-00 Ⓒ	1-121-660-00 Ⓓ	1-123-067-00 Ⓕ	1-121-984-00 Ⓕ	–
3300	1-121-661-00 Ⓓ	1-123-075-00 Ⓔ	1-123-071-00 Ⓕ	–	–	–

CAP. (μF)	100 VOLT. PART No.	160 VOLT. PART No.	250 VOLT. PART No.	350 VOLT. PART No.
0.47	–	–	–	–
1.0	1-123-249-00 Ⓐ	1-123-252-00 Ⓐ	1-123-003-00 Ⓑ	1-121-168-00 Ⓑ
2.2	1-123-250-00 Ⓐ	1-123-026-00 Ⓑ	–	1-123-028-00 Ⓑ
3.3	1-121-995-00 Ⓐ	–	1-123-004-00 Ⓑ	1-123-006-00 Ⓒ
4.7	1-123-255-00 Ⓐ	1-121-246-00 Ⓑ	1-121-759-00 Ⓑ	1-123-007-00 Ⓓ
10	1-121-126-00 Ⓑ	1-121-999-00 Ⓑ	1-123-254-00 Ⓒ	1-123-008-00 Ⓓ
22	1-121-996-00 Ⓒ	1-123-253-00 Ⓒ	1-123-005-00 Ⓓ	1-123-022-00 Ⓓ
33	1-121-997-00 Ⓒ	1-121-757-00 Ⓒ	–	–
47	1-123-251-00 Ⓒ	1-121-919-00 Ⓒ	–	–
100	1-123-084-00 Ⓔ	–	–	–

CERAMIC CAPACITORS Ⓐ

RATING

CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS Ⓐ

RATING → : Use the high voltage rated one.

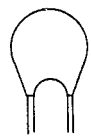
CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS Ⓐ

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

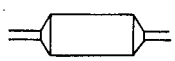
CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS



CAP. (μF)	RATING 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
	→ : Use the high voltage rated one.						
0.01					→	→	1-131-396-00 Ⓑ
0.015						→	1-131-397-00 Ⓑ
0.022						→	1-131-398-00 Ⓑ
0.033						→	1-131-399-00 Ⓑ
0.047						→	1-131-400-00 Ⓑ
0.068					→	→	1-131-401-00 Ⓑ
0.1					→	→	1-131-402-00 Ⓑ
0.15					→	→	1-131-403-00 Ⓑ
0.22					→	→	1-131-404-00 Ⓑ
0.33					→	1-131-409-00 Ⓑ	1-131-405-00 Ⓑ
0.47	–	–	–	–	1-131-412-00 Ⓑ	→	1-131-406-00 Ⓑ
0.68	–	–	–	1-131-415-00 Ⓑ	→	1-131-410-00 Ⓑ	1-131-407-00 Ⓑ
1.0	–	–	1-131-418-00 Ⓑ	–	1-131-413-00 Ⓑ	→	1-131-408-00 Ⓑ
1.5	–	1-131-421-00 Ⓑ	–	1-131-416-00 Ⓑ	→	1-131-411-00 Ⓑ	1-131-348-00 Ⓑ
2.2	1-131-424-00 Ⓑ	–	1-131-419-00 Ⓑ	–	1-131-414-00 Ⓑ	1-131-355-00 Ⓑ	1-131-349-00 Ⓑ
3.3	–	1-131-422-00 Ⓑ	–	1-131-417-00 Ⓑ	1-131-362-00 Ⓑ	1-131-356-00 Ⓑ	1-131-350-00 Ⓑ
4.7	1-131-425-00 Ⓑ	–	1-131-420-00 Ⓑ	1-131-369-00 Ⓑ	1-131-363-00 Ⓑ	1-131-357-00 Ⓑ	1-131-351-00 Ⓒ
6.8	–	1-131-423-00 Ⓑ	1-131-376-00 Ⓑ	1-131-370-00 Ⓑ	1-131-364-00 Ⓑ	1-131-358-00 Ⓒ	1-131-352-00 Ⓒ
10	1-131-426-00 Ⓑ	1-131-383-00 Ⓑ	1-131-377-00 Ⓑ	1-131-371-00 Ⓑ	1-131-365-00 Ⓒ	1-131-359-00 Ⓒ	1-131-353-00 Ⓓ
15	1-131-390-00 Ⓑ	1-131-384-00 Ⓑ	1-131-378-00 Ⓑ	1-131-372-00 Ⓑ	1-131-366-00 Ⓒ	1-131-360-00 Ⓓ	–
22	1-131-391-00 Ⓑ	1-131-385-00 Ⓑ	1-131-379-00 Ⓒ	1-131-373-00 Ⓒ	1-131-367-00 Ⓓ		
33	1-131-392-00 Ⓑ	1-131-386-00 Ⓒ	1-131-380-00 Ⓒ	1-131-374-00 Ⓓ			
47	1-131-393-00 Ⓒ	1-131-387-00 Ⓒ	1-131-381-00 Ⓓ	–			
68	1-131-394-00 Ⓑ	1-131-388-00 Ⓒ	–	–			
100	1-131-395-00 Ⓓ	–	–	–			

TANTALUM CAPACITORS



CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00 Ⓔ
0.047						1-131-274-00 Ⓔ
0.068						1-131-275-00 Ⓔ
0.1						1-131-276-00 Ⓓ
0.15						1-131-277-00 Ⓓ
0.22			–	–	1-131-262-00 Ⓓ	1-131-278-00 Ⓓ
0.33			–	–	1-131-263-00 Ⓓ	1-131-279-00 Ⓓ
0.47			1-131-169-00 Ⓓ	–	1-131-264-00 Ⓓ	1-131-280-00 Ⓓ
0.68			–	1-131-258-00 Ⓓ	1-131-265-00 Ⓓ	1-131-281-00 Ⓓ
1.0			1-131-254-00 Ⓓ	–	1-131-266-00 Ⓓ	1-131-282-00 Ⓓ
1.5		1-131-250-00 Ⓓ	–	–	1-131-267-00 Ⓓ	1-131-283-00 Ⓔ
2.2		–	–	1-131-259-00 Ⓓ	1-131-268-00 Ⓓ	1-131-284-00 Ⓔ
3.3		–	1-131-255-00 Ⓓ	–	1-131-269-00 Ⓓ	–
4.7		1-131-251-00 Ⓔ	1-131-171-00 Ⓓ	–	1-131-270-00 Ⓓ	–
6.8		–	–	1-131-260-00 Ⓓ	1-131-271-00 Ⓔ	–
10	–	–	1-131-256-00 Ⓓ	–	1-131-272-00 Ⓔ	–
15	–	1-131-252-00 Ⓓ	–	1-131-261-00 Ⓔ		
22	–	–	1-131-257-00 Ⓔ	–		
33	1-131-176-00 Ⓓ	1-131-253-00 Ⓔ	1-131-173-00 Ⓒ	–		
47	1-131-288-00 Ⓕ	1-131-174-00 Ⓓ	–	–		
100	1-131-177-00 Ⓓ					

Sony Corporation

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